



## **A Review of Dr. Hart's Paper.**

By I. NORMAN BROOMELL, D.D.S., Philadelphia, Pa.

In the discussion of this subject two important facts must be acknowledged; first, the unusual advantages offered by the oral cavity to the ready entrance and rapid growth of micro-organisms, and, second, the impossibility of alteration in the structural arrangement of the enamel of the teeth.

It is without doubt an established fact that the cavity of the mouth, even in apparently healthy individuals, contains bacteria in profusion, the character and number of which is much influenced, or probably entirely controlled, by the cleanliness of the parts.

The location most favorable to the growth of these micro-organisms is found to be in those parts least affected by the movements of the tongue, by mastication or by the natural friction occasioned by the movements of the walls of the mouth. No stronger proof of this fact need be mentioned than by reference to the lingual surfaces of the inferior teeth, which are seldom attacked by caries.

Accepting, then, the enamel as a finished or completed tissue at the time of the eruption of the teeth—that is, so far as its structural arrangement is concerned, we must recognize two prominent factors in the etiology of tooth decay; one, fermentation under the agency of micro-organisms which may generate upon and cause decalcification of enamel, be it normal or abnormal in character, and the other, in which we have the more rapid degeneration of the tissue, first by chemical action encouraged by defects in quality or structural form.

If we, therefore, acknowledge the enamel as unalterable, except those changes which take place by desiccation, and at the same time admit a decided variation in quality or density of the structure, some forcible theory must be advanced to account for this latter condition.

In what part of the tissue shall we look for the cause? Certainly not in the enamel prisms themselves, but rather in the interprismatic substance.

To what do we attribute the variation in the density or compactness of the bony tissues in general? Is it not to the proportionate quantity of organic and inorganic constituents making up the structure?

Let us, therefore, accept the theory (which as yet has not been otherwise proven) that the enamel, so far as its matrix is concerned, is possessed of more or less organic matter, and in this manner we have furnished a tissue quite variable in density.

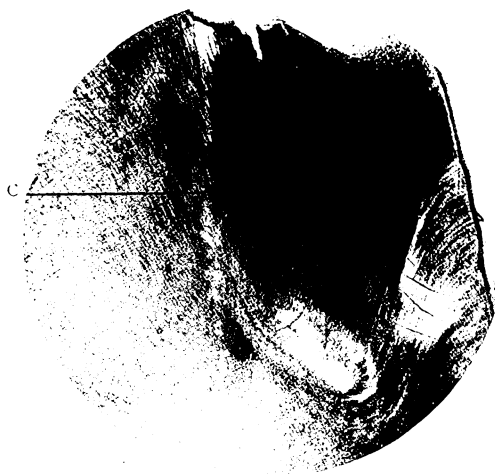


FIG. 1.

A correct interpretation of the treatment advocated by Dr. Hart embraces nothing new, being included in one word—cleanliness. It would certainly be most gratifying if oral antisepsis were given the consideration which it deserves, for by this means we might exclude or destroy the germs of putrefaction, particularly if applied and persisted in before infection.

I am exceedingly sorry that the essayist has devoted the major part of his paper to what appears to be an uncalled for attack upon Drs. Black and Williams. He thoughtlessly and unwisely accused these gentlemen of arriving at conclusions which they cannot substantiate; as considering themselves possessed of "absolute knowledge;" of ignoring the writings of others, and finally censures them for expressing their own opinions, all of which are based upon a foundation of actual, intelligent research.

He refers to the fact that the profession had been "awed into silence" by the masterly manner in which these same gentlemen have presented the results of their investigations. This is very true, and wisely so; it is a silence that is golden, and it requires more than a good round bump of self-esteem to break the spell.

I fail to understand what authority Dr. Hart has for presupposing the presence of bacteria in certain localities in the various illustrations which he submits as evidence. Many of these bacterial plaques, as he terms them, are located in what appears to be absolutely healthy tissue, and could with

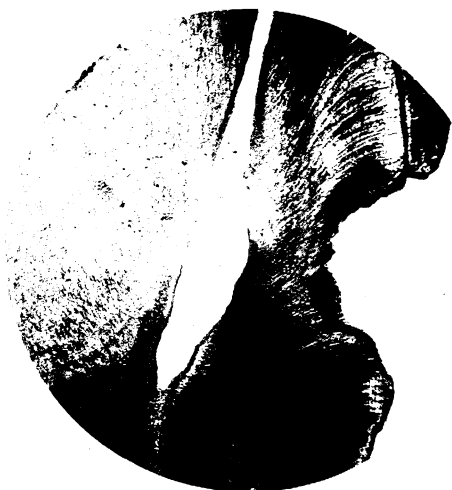


FIG. 2.

equal propriety be designated as normal pigment plaques. To ascertain the true character of such spots, a high power objective must be employed, and this he has failed to utilize in most instances.

I note also that in the pathological condition known as pyorrhea alveolaris, he refers to the *dentine* becoming exposed and subjected to the action of bacteria by the characteristic recession of the gingivæ. This is a new phase of this disease with which I have not become familiar, the *cementum* being the tissue exposed in those cases which have come under my observation.

Reference was made, when reading his paper, to a certain varicosed appearance of one of Dr. Williams's slides, the jarring of the camera

being given as a plausible reason for such an effect. Those familiar with the technic of photo-micrography know that no such appearance could be brought about in this way, and the suggestion I think shows a lack of knowledge in regard to the methods employed.

Dr. Hart believes that by a system of osmotic sterilization, many congenital and acquired defects in the tooth tissues may be rendered immune to degenerative tendency. To fully appreciate the importance and probable impossibility of this hypothesis, some consideration should be given to the phenomena of caries.



FIG. 3.

The few illustrations which accompany this article are reproductions from tooth sections, especially and somewhat hastily prepared for the purpose, and none of them were stained with the idea of differentiation. The staining of tooth sections has always appeared to me to be uncalled for and deceptive as to results. The microscope in itself is capable of making a fool of the man who thinks himself wise beyond comparison, and the useless staining of those tissues which reveal their normal, as well as some of their abnormal conditions, when unstained, is not calculated to simplify the investigation.

It is amusing to note to what methods scientific investigators will sometimes resort to accomplish a desired purpose, and this is particularly true since the microscope has accepted the camera as an equal partner in business. I once knew of a would-be dental scientist who had it in mind to photograph the back of a chair in a Pullman car, for the purpose of representing enamel rods in transverse section, the embossed leather covering presenting a favorable appearance for his purposes. For this reason it is well to look upon many illustrations made by the aforesaid enterprising firm with more or less suspicion, particularly when the high power objectives are brought into use.

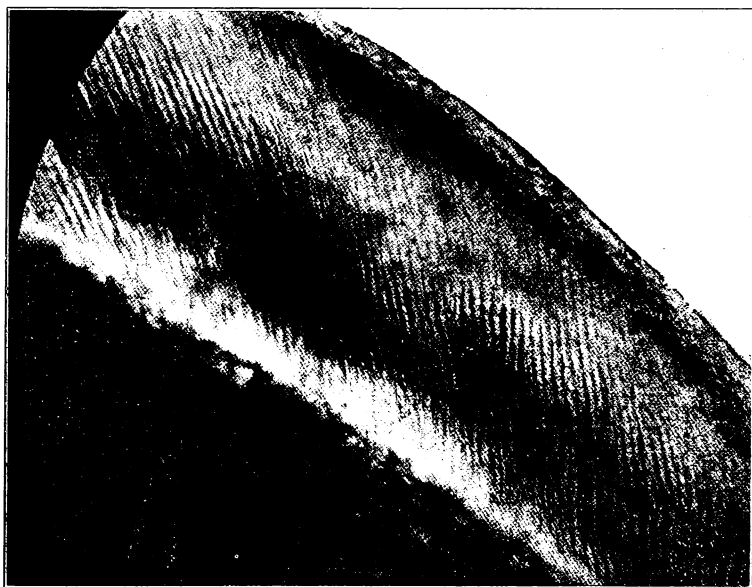


FIG. 4.

In Fig. 1 we have shown two stages in the progress of dental caries; one in which the lime salts of the tooth which, in themselves, are insoluble compounds, are undergoing a chemical change resulting in that condition known as decalcification, wherein the histological elements composing the tissue are disrupted and carried off in solution.

The other condition shown is that in which the organized matter within the tooth tissue, forming its basis substance, or matrix, is undergoing disintegration, not by chemical activity, but by that phenomena by which all organized matter disintegrates—putrefaction—this taking place

under the influence of micro-organisms. The transparent zone so frequently described as outlining the extent of infection, is also seen at "C."

Fig. 2 illustrates under low power a cavity of decay in the cervicobuccal region of a lateral incisor. One peculiarity about this specimen observed during the preparation of the section, was the disposition for the dentine in immediate contact with the pulp chamber and directly opposite the surface decay, to exhibit positive signs of disintegration, thus favor-

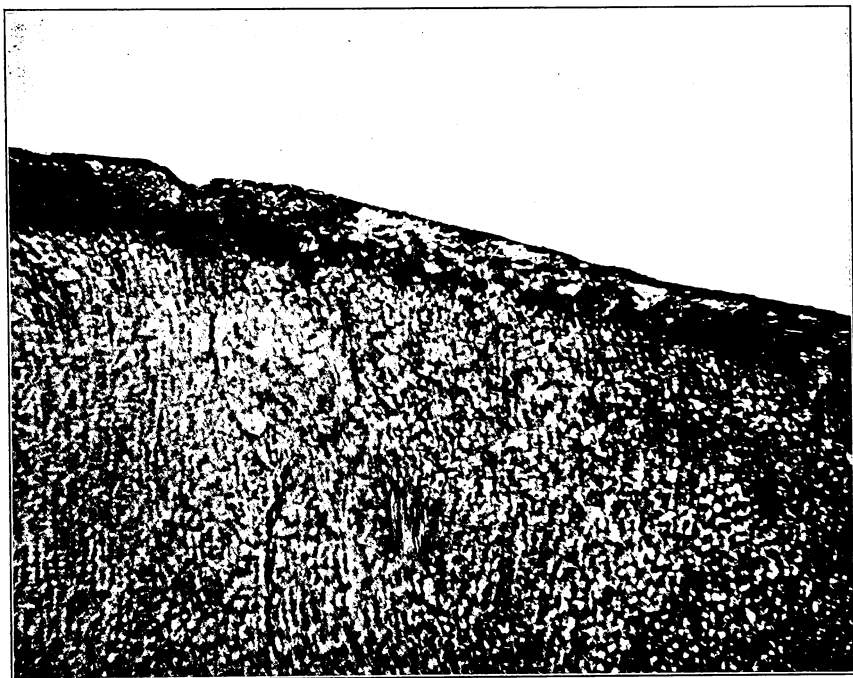


FIG. 5.

ing one of the old theories that decay of tooth tissues was an intrinsic process. This specimen also shows to advantage the outline or extent of infection, complete or almost complete decalcification having taken place in the outer layers and gradually diminishing as the normal tissue is approached. In locations such as this, we suspect the cause to be thorough fermentation under the influence of micro-organisms, resulting in the generation of an acid capable of decalcifying the tooth tissue.

While decay in this location is of frequent occurrence, it is probably the least frequent point for such an outbreak, and is of much less serious import. The method of treatment advocated by Dr. Hart while prob-

ably of some value in incipient caries in this location, would fail in those cases more frequently met with in which the pathological condition is deeply seated.

Such a condition I have attempted to illustrate in Fig. 3, the seat of infection being immediately beneath one of the developmental grooves of the tooth crown. It will be observed that the surface is devoid of enamel (this tissue breaking up during the preparation of the specimen) and that the dentine near the surface is but slightly affected, while in the deeper

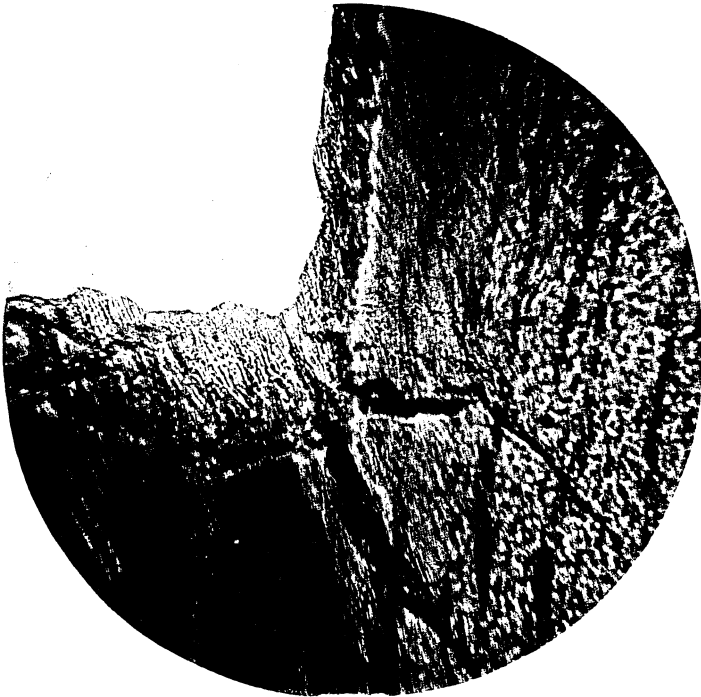


FIG. 6.

lying tissue, the damage is so great that to attempt to check the destruction by any other means than mechanical interference, would certainly seem to be out of the question. The transparent zone is also shown at "C."

While the dentine of the tooth is the tissue which suffers the most, the greatest interest is attached to that structure which Nature has appointed as a defender or protector to it, the enamel. There are two primary conditions under which this tissue succumbs. In one we note a failure upon the part of the enamel rods of one developmental district to coalesce with those of the neighboring district, resulting in an imperfection

at that point. In the other we observe a deficiency in the quality or texture of the structure as developed, frequently accompanied by various anomalous conditions.

In Fig. 4 we have shown enamel from a newly erupted tooth, one upon which there has been no action of the oral secretions, but at the same time we see what appears to be an insufficiency of lime salts about the surface, and while the body of the tissue appears perfectly normal, it does not possess the appearance of compactness or hardness which it should to faithfully perform its function. This we would expect to see changed as the process of desiccation proceeds.

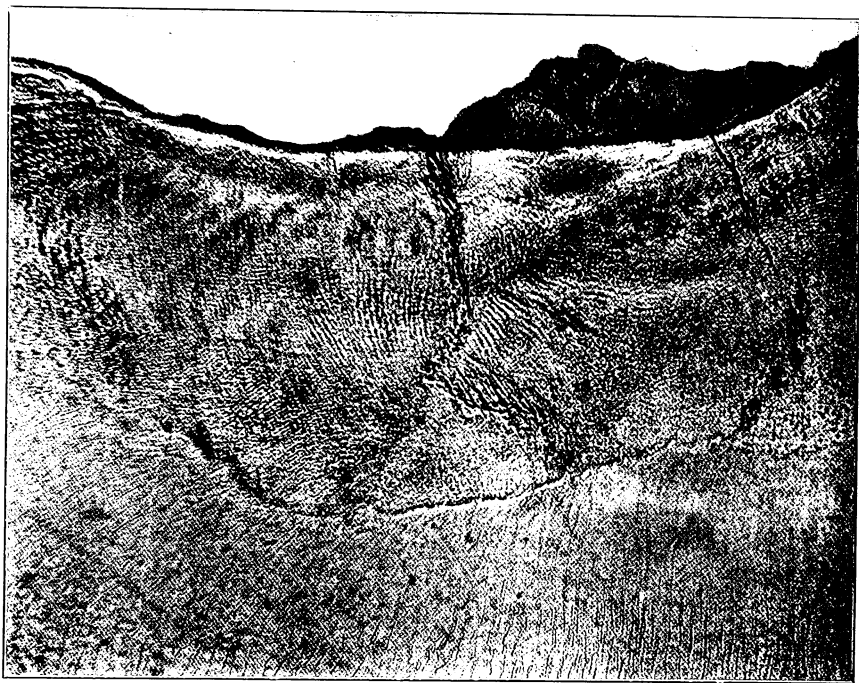


FIG. 7.

Fig. 5 shows a slight surface decalcification of the enamel, the tooth when removed from the mouth presenting the appearance at this point, so commonly described as "chalky." Now let us briefly consider what has taken place in this tissue. Unlike the same destructive process in the dentine, we do not have a penetration of the tissue by the micro-organisms, but rather we have them kept in actual contact with the surface a sufficient length of time to establish the process of fermentation, and



after this has once taken place we find, as shown in this illustration, the enamel beginning to lose its normal transparency, that gradually the cementing substance, be it organic or inorganic, is dissolved and finally the rods themselves fall away. An appearance quite similar to this may be brought about by artificial caries, when some of the mineral acids (chromic for one) are used for the purpose.

In Fig. 6, reproduced from a longitudinal section of a molar tooth, the gradual decalcification and breaking up of the enamel rods is shown.

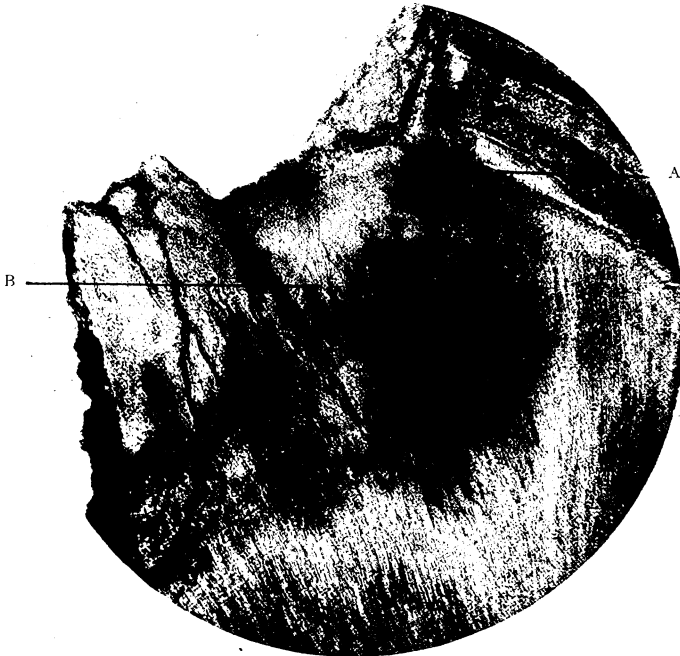


FIG. 8.

By transmitted light, the extent of this action is outlined by a positive zone of a white or bluish white color, the same line by reflected light being quite dark. The decalcification of enamel either in or out of the mouth must of necessity differ from the same process in dentine, and this difference is strongly manifest in the present illustration, the loss of the interprismatic substance resulting in clearing the tissue and therefore making its structural form readily apparent.

Dr. Hart has referred in some of his writings to a layer of bacteria upon the surface of enamel which, in itself, appears to render the surface beneath immune to the action of other acid-forming and destructive bacte-

ria. However this may be, I believe it has long been an established fact that caries does not generate beneath a deposit of salivary calculus with its countless multitudes of bacteria. Such a deposit is shown in Fig. 7. This cut also shows a variation in the distribution of the enamel rods, together with a cracking of the enamel, this rupture following the line of least resistance, as provided by the imperfect formation of the tissue.

In connection with the subject of anomalous enamel development, I desire to call attention to one or two of these structural peculiarities. Fig.



FIG. 9.

8 shows a longitudinal section of a portion of the crown of a broken down bicuspid. At "A" may be seen the normal line of union between the enamel and dentine, and naturally we would expect this line to continue unbroken to the summit of the cusp, and this it may have done, but beside the normal distribution of enamel, we find this tissue substituted for the dentinal tissue at "B," and as the architectural plan of the tooth is thus interfered with, we note a breaking down of the structure and numerous longitudinal defects leading through the misplaced tissue to the dentine beneath.

The imperfections present in the crown of this tooth at another point, and by an abnormal condition closely corresponding to that shown in Fig. 8, are more clearly shown in Fig. 9. Here also, we find the enamel occupying a part of the space which should be taken up by the more highly organized structure, and we observe the presence of a carious condition, the borders of which suggest by their appearance imperfect calcification, and the presence of so-called interglobular spaces.



FIG. 10

Fig. 10 represents another case in which the line of union between the enamel and dentine is interrupted by a protrusion of the former tissue into the latter, and accompanying this we also have a zone of pathological enamel. In longitudinal sections, it is not unusual to find an imperfection the reverse to this, in which the dentine protrudes into the enamel, but it is seldom that the condition here illustrated is present.

There is usually a decided disposition for caries to progress in the direction followed by the dentinal tubules, when once that tissue has been attacked. Not infrequently however, they will penetrate or spread in vari-

ous directions regardless of the normal structural formation. If a careful examination be made in spreading caries, the cause may usually be assigned to some imperfection in development.

A very frequent location for these abnormal openings is shown in Fig. 11 by a zone of imperfectly calcified dentine immediately beneath the enamel. The presence of such a faulty condition as this, together with the generous normal intercommunication of the dentinal tubules in this region, affords food, shelter and transportation for micro-organisms, and

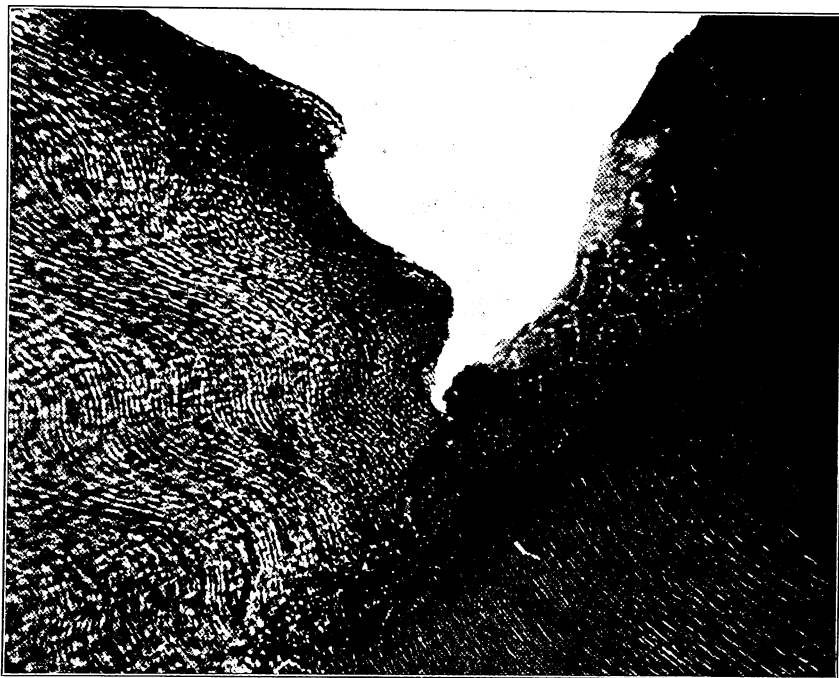


FIG. 11.

as a result we have the most rapid destruction of tooth tissue in these localities.

While the enamel rods in this case might be considered abnormally distributed, this cannot be positively acknowledged, for very frequently in locations subject to unusual strain during the functional activity of the tooth, this tissue is reinforced by the enamed fibers overlapping and tying one another together. To sum up then, we find the causes for dental decay so numerous and so variously located that, at present, the only hope of successful interference lies in the practice so long in vogue—instrumentation.

## Reply to Dr. Hart.

By DR. R. R. ANDREWS, Cambridge, Mass.

I desire to correct an erroneous impression that Dr. A. C. Hart has given in regard to my views of the structure of the enamel.

In his article entitled "Prevention of Decay of the Teeth," published in a recent number of *ITEMS OF INTEREST*, he gives the impression that I believe with Heitzman and his followers, that adult enamel contains an organic network that is not completely calcified. This is wholly unlike any statement I have ever made. The only thing that I have ever written that might be misconstrued in this way, was, that around the developing enamel rods, while the tooth was forming, I had found a scaffolding of fibers, supporting the globular masses, which were to form the rods. I stated that these were *fully calcified* as the tissue was formed.

I believe with Prof. W. X. Sudduth that enamel, fully formed, is nothing more nor less than a coat of mail, supplied by Nature to protect the dentine, and subserve the processes of mastication, and I doubt if it be possible, in perfectly formed human enamel, to find so much as a trace of organic matter within the substance of the enamel itself, or at its surface. Near its junction with the dentine, there are nearly always found slight prolongations of the organic tissue, from the dentine, within its substance, and those are numerous enough at this point to account for the one to three per cent of organic matter found in enamel on analysis.

The enamel is lifeless; there is absolutely no difference to be found by the microscope, in the appearance of the enamel of a live tooth, from that of a tooth that has been a long time dead. It is wholly of formed material, an absolutely calcified mass, meant by Nature as a protection for the dentine; once broken it is never repaired by any natural process, as is the case with the dentine.

I am not in accord with the Heitzman theories, and never was. I believe with Drs. Sudduth, Williams and Black, that enamel is wholly calcified. Dr. Sudduth, who has done a great deal of investigating on this subject, has demonstrated this fact so thoroughly, there is no longer room for doubt. His investigation with very thin sections of enamel, with high power, was very conclusive. A one-fifth of one per cent solution of chromic attraction, and acting for fifteen minutes, was found to have capillary attraction, and acting for fifteen minutes, was found to have acted first on the cement substance, between the rods—on pressing the cover glass, the rods or prisms fell apart—and under the most careful investigation, Dr. Sudduth could not find a trace of an organic tissue.

Dr. Hart's mistake is in assuming that there is an organic cement substance between calcified rods or prisms, when in reality the whole mass is calcified. I am in accord with his statement "The more healthy the pulp and vital structure of the tooth, the better able will the tooth be to withstand the action of acid-forming bacteria," but this applies to the pulp and dentine only. The enamel itself is not a vital tissue.

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### **Dazzling Dentistry.**

By WILL H. SAVAGE, D.D.S., Clifton Forge, Va.

Truly it would seem that the time has come for all reputable practitioners not only to refrain from placing gold crowns on front teeth, but to teach their patients that such a procedure is a glaring vulgarity. In some few instances this might be justifiable; but, oh, how few!

I am one of those who believe that the dentist should be a teacher. It goes without saying that he should be an honest one, deeming his patient's permanent welfare paramount to all things else.

I doubt not that often the conscientious practitioner could dissuade his confiding patient from making this glittering display. There are dentists who advise such a course in any instance; others who do not think it altogether the correct thing, but will put a gold crown wherever they can get paid for it; others still who positively refuse to put on one anterior to the second bicuspid.

Granting that the patient desires such work, the dentist who not only has the layman's taste but the additional experience and training of his profession, ought to be capable of deciding what is best; and, if his clientele have confidence in him, he should be able to modify their preconceived opinions and wrong ideas concerning dental practice.

Does a patient consult a physician and then select what medicine shall be prescribed? No more does a dental patient know what filling material is indicated, or what kind of a crown is best adapted to the case in question.

I recall an instance in which a lawyer had a gold crown placed on a superior lateral incisor root. Sometimes he would get religious and preach for six months. Thus the smiles of Dr. Jekyll and Mr. Hyde were radiant in whichever vocation he plied. Another lawyer likewise fell into evil hands, and he had a central and a lateral put on. Neither gentleman wears a moustache; both are intelligent. Unquestionably the dentists themselves are largely to blame for this condition of affairs. If they will but reason with such patients and let them know that such a course is not

a correct one, soon these dazzling smiles may be overcome, for those who care for appearances will not tolerate such a display, unless, perchance, like a cannibal king of the South Sea Islands, they wish to go the extreme of personal adornment, with feathers in their hair and a ring in their nostrils.

### Gasoline Furnaces.

By PAUL STEINBERG, M.D.S., D.D.S., Chicago, Ill.

**Where  
to Procure  
Furnaces.**

I take pleasure in responding to Dr. L. M. Matthews's inquiry, and wish to state that there are many gasoline furnaces in the market.

There is the Hoskin furnace, manufactured by Hoskin and Co., Chicago. They make a variety of assaying furnaces. With their combination furnaces at \$10.00, you can work continuous gum, cast aluminum, and do any kind of melting. The Caulkins furnace, Size B, for sale by F. W. Braun & Co., Los Angeles, Cal., at \$16.00, which, in my belief, is the most perfect of all, will do all of the above work to better advantage. Last, but not least, is Dr. R. C. Brophy's Laboratory Gas System, a combination outfit of blow-pipe, heater and furnace.

The apparatus used for heating every one of the above mentioned furnaces, is identically the same as used for bicycle brazing, with but one burner, the brazers having as a rule two and more burners. The Invincible Manufacturing Company, of Wilmington, Ill., and the White Manufacturing Company, of Chicago, as well as Turner's Brass Works, Chicago, manufacture such apparatuses from \$10.00 to \$15.00. These machines will not only do the work of the higher priced ones, but are identically the same.

If I were to practice in the country, where I would have neither gas nor electric power, by all means I would have one of the above apparatuses, but could I get electric power, I should choose Curis's, or (as Dr. Haskel suggested) Jackson's electric furnace (made in England), for porcelain work; for melting and for many other purposes I would get the Invincible blow-torch at \$2.50, a handsome little tool which generates a flame of more than two thousand degrees and will easily melt copper and brass. Its range is from the wide spreading flame to a fine fierce pointed flame controlled by a needle valve. This is almost an indispensable tool for even a city dentist, its uses being so numerous. One charge of air only is necessary to run the gasoline out, and, as asserted, will at the highest pressure last three hours.

**Method  
of**

**Making a Furnace.**

To construct your own furnace of any size desired is a very easy affair; for instance, take a Russian iron pipe, six or eight inches wide, length as you may desire—say, twelve inches, and line with regular stove fire bricks—it will take fifteen bricks at three cents each—joint with fire clay mixed with water, to which you may add a little salt; cut a one-inch hole for flame to enter into mantel before lining, two inches above bottom; make the latter of crushed fire brick and clay; also make a removable cover of the same material with center hole.

The larger you construct the furnace, the larger crucibles you may use for melting different metals; also you may do your cast aluminum work with this little furnace.

If a removable horizontal division is made, or a small muffle placed in the furnace, you may back your porcelain, build up your gold inlays or do any kind of soldering.

**Cast Aluminum Plates  
a Failure.**

I wish to state that I am anything else but an advocate of cast aluminum work. I consider this work an absolute failure. First, for the reason that the plate lacks the proper fit on account of the shrinkage caused by all the investment materials; the expansion of the metal afterwards will not correct this fault, as it takes place in another direction.

Secondly, in order to be substantial, the plate must be necessarily thick, as cast aluminum has a tendency to tear, unlike the rolled and swaged aluminum.

The greatest objection to casting aluminum direct to teeth is because the platinum pins will be affected by the fusing aluminum, being thereby rendered brittle, causing the teeth, with but very little force, to come off the plate, the pins breaking so that half is respectively left in the tooth and plate. The platinum pins present an appearance like ink which has been acted upon by an acid, corroded!\*

Dr. R. C. Brophy believes that my assertions are not borne out by facts, but admits that they sometimes break off very easily. The reason given by the Doctor is, that a very large percentage of teeth have pins made of an alloy. Dr. Brophy is figuring on a pinless tooth which soon will be in the market. I have used S. S. White's gum teeth. Are their pins not of pure platinum?

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\* The author submitted specimens which seem to substantiate this statement.—EDITOR.



# Office and Laboratory

## Office of Dr. Frank R. Faber, Constantinople, Turkey.



I have had so much pleasure in reading the descriptions of the various dental offices published during the last year, that the spirit has moved me to forward a description and photographs of my own. The idea is a very good one and will materially assist some of our colleagues who lack taste in the matter of decoration, or who may have become negligent as regards their office surroundings. I particularly thank Dr. Ottolengui for the description of his own instrument cabinet. Constantinople is full of rare old furniture, and once in a while there is a sale of it. I am waiting my chance to get a nice old piece as a base for the alterations.

My offices are situated in an apartment house, and as I occupy the whole suite I am quite free from any neighborly annoyances, being as I am the sole tenant on the floor I occupy. The arrangement of this house I find very convenient. It has the advantage of four façades which assures plenty of light and air. The outlook is over the Golden Horn. The buildings on the other side are a portion of Stamboul, the Turkish quarter.

Figs. 1 and 2 are from photographs of the general reception room. There is still another done in Japanese style for the Turkish ladies, as they do not enter a room where gentlemen might enter. I do not send it as I do not care to offer too many.

The door, shown in Fig. 1, serves as an entrance for the patients from the corridor. The door shown in Fig. 2 opens into the office, Fig. 3. The fixed screen before this door serves as a shield for patients going out of the office, from those waiting in the reception room, and is also very

convenient for myself in case I wish to go into the laboratory, or in another part of the house without being stopped in the reception room. It opens into a room next to the reception room and a turn to the left brings one to the corridor. This room is also fitted up as an office for short operations.

The style of the reception room is oriental and is called "Moosharabea." The walls of the room are entirely covered with the walnut panels placed over red paper on the walls back of them. The curtains are also of red native silk, thin. The light shining through them and reflecting on the bit of red showing through the space between the turned wood makes

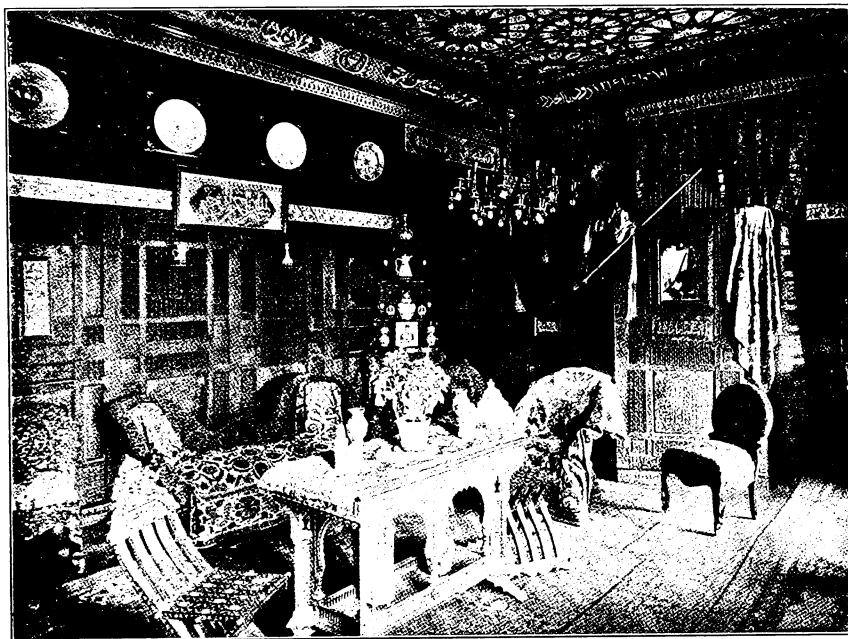


FIG. 1

a very harmonious effect. Two lines of old Turkish tiles run around the room, between the panels and over them. The cornices are made of wood and covered with the same kind of tiles. The mantelpiece which scarcely shows in the illustration is also tiled. The furniture is carved teak wood. This is not strictly Turkish. In fact, it is Indian. I have it in use for the time until I can replace it with "Moosharabea" furniture, which is filled with small wood turnings like the table shown in both illustrations. The carpets on the floor are of course fine old ones as I am in the market and

can get nice ones. Those on the floor are of wool. The *fauteuils* in both office and reception room are of silk. The ceiling is covered with old Turkish and Persian tiles collected after many a wearisome search, and placed in position with much vexation of spirit and considerable profanity, as the Oriental workmen are a very negligent lot of people. The plates around the walls are of the variety known as Rhodian. They are now very rare, as the art of making them is lost. The bits of embroidery and various other knick-knacks around the room have been collected from time to time. Everything in this room is antique. Nothing modern. I have

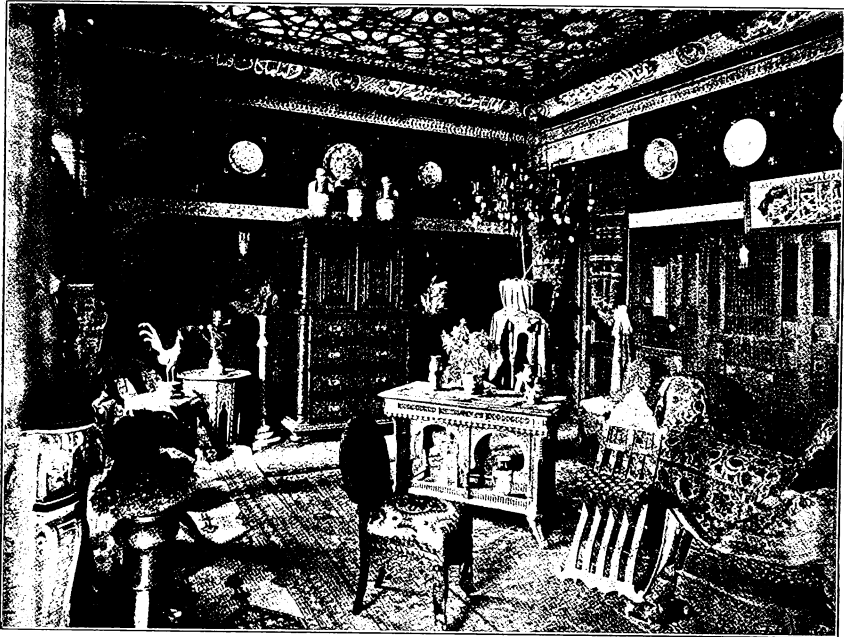


FIG. 2.

been four years mounting it and have not yet finished. Many things still fail to make it complete, but they must be found as opportunity offers. It will perhaps be a pleasure for some of our artistically inclined colleagues to see it, even if they should not care to go in for the same. In fact, I advise them not to do so. It was a fad of mine; and a very troublesome and expensive one I have found it to be.

The office presents no especial feature beyond its compactness. It is of a convenient size to have everything within reach. There is also a win-



FIG. 3.

dow at the end of the room back of the chair, giving a nice draft of air in summer and furnishing additional light. The stationary washstand is alongside of this window opposite the desk. The corner to the left of the chair under the clock is occupied by the nitrous oxide apparatus. It was removed in order not to crowd the picture. The typewriter is contained in the desk. The little cabinet on the table with the white cover contains about fifteen thousand teeth, as here every dentist is his own dental depot as regards teeth. It is really a great convenience to have them this way. It recompenses for the interest on the money invested, to any man taking an interest in prosthetic dentistry. The panels in the door have mirrors inserted into them. Mirrors are always cheerful bits of furniture, make the room look larger, and are appreciated by lady patients. The electricity is furnished by a battery, as Constantinople does not possess an electric plant.

The battery is an Edison-Leland. Later I will send an account of my experience with it for publication. I have had it in use now over three years, and have learned how to hold it down to its work economically, and to make it give up electricity to its fullest capacity.





## **The Dental Profession.**

By DR. F. LE GRAND AMES, Albany, New York.

*Read before the Second District Society, December, 1898.*

It is my desire to cultivate the acquaintance of the profession through the medium of the District Societies as far as practicable and thus bring them more in touch with the State organization.

I have always felt that it was the duty of the President of the State Society to pay this annual visit, and thus show that he is not indifferent to the integral parts of the organized profession of the State. For it is by the loyalty and integrity of the District Societies that the State Society must be maintained.

For over thirty years I have maintained a membership in the Third District Society, and the number of times that I have not answered to the roll call have been few. And I now consider it the proudest moment of my professional life that I am able to say that I have been a persistent member of the organized profession since its inception in this State. My preceptor was a dentist of the old school. When I began my tuition, he had been in practice twenty-three years, and had conducted a very successful practice. His graduation was, like other pioneers, from the anvil, shoe bench or workshop, encountering many difficulties, gaining their way step by step, by conservative and intelligent application of the knowledge gained by their previous mechanical occupations.

Much has been said and written upon the subject of the dental profession, claiming the title to be classed as a specialty in medicine, and very justly so, for have we not our universities, institutes and colleges, all striving to excel in their equipment and standard of education, and have we not our law to prevent illegitimate practice, for the protection of the public, and last, but by no means least, have we not our regents and boards of dental examiners; and to what purpose, if not to uplift and maintain the highest status for our profession?

But is it doing it, gentlemen? Have you ever asked yourself that question, and been able to give a satisfactory affirmative answer? Let me engage your attention for a brief space to the field for our profession and the pioneers who occupied it in the early part of the present century. We find written high upon the catalogue, Parmley, Fitch, Brewster, Gardette, Keoker, Hayden, Hudson, Randell and Greenwood. The most conspicuous among them was Eleazer Parmley, who after a long and successful practice finally settled in New York City and a word from his own pen, dated Dec. 3, 1868, cannot fail to be of interest at this time:

No. 19 West 38th St., New York,  
December 3, 1868.

**Letter from  
Eleazar Parmley.**

MY DEAR SIR:—

I commenced practice in Montreal in the spring of the year, 1815, with my brother, Levi Spear Parmley, one of the pioneers of the profession in this country, who was one of the first of his day and a very remarkable man. He had the advantage previously of the instruction of Dr. Petrie and Dr. Randell, of Boston.

The latter with Dr. Greenwood had the control of the practice in Boston. Mr. Parkhurst, Wooffondale, Gaeten and Greenwood had all that was worth having in New York, Philadelphia being more fortunate, having Gardette, Hudson and Keoker, all of whom in that day were remarkably clever men.

The two first having the advantage of being educated to the profession; the second, being the son of a distinguished dentist in Dublin, Ireland. Hayden of Baltimore was an exceedingly clever man, being a mineralogist as well as a dentist.

In 1817 I met a young man by the name of Shymaski, gentlemanly in every respect, who had studied and practiced dentistry in Poland, as they understood it there. These were the principal dentists of the day. I vied with no other person who even called himself a dentist from Philadelphia to New Orleans, and I practiced in the principal towns, going West between the two places. But feeling my total lack of a knowledge of the profession, I went to Europe to study, where I became acquainted with silicious teeth. On my return to New York in 1822, my brother, Levi Spear Parmley, settled in New Orleans; my brother, Jehial, going south during the winter, my brother Samuel settled in New York; my cousins, Jehial and David, are still in New York; their brother, Ludolph, settled and died in Mobile.

I have given you the names of the principal men of 1815, and now at the age of seventy-one years I have seen the profession grow from an art to a science, with societies and colleges and schools where little else

is taught, and the number of dentists beyond counting, and of this number a few have been successful, but the greater number have lived along as you see them now.

Very truly yours,

E. PARMLEY.

**Pioneers  
of the  
Dental Profession.**

As early as 1810 Wm. Walston Brockway, who was a neighbor of the Parmleys, near Newbury, Vt., began the practice of dentistry in Boston, but death soon ended a prosperous and prospective business, and his brother, Josephus, inherited his instruments and ultimately his profession, beginning the practice about the year 1822. According to his own statement, he was the only dentist occupying the territory from Canada to Albany, and from the White to the Rocky Mountains, not having met with but one other who had ever visited that territory anterior to 1822, a Dr. Liscomb, educated to medicine. As you are aware, Europe was the birthplace of dental science and art, but America presented the better field for its culture and growth, and so we found the name of Hudson, who was educated by his father, a dentist of high standing in Dublin, as a practical operator, occupying a superior position, seldom exceeded at the present day. Gardette and Keoker were well educated and Hayden of Baltimore was scientific, while Randel and Greenwood gave character to the profession in Boston. Greenwood, I believe, had the honor of substituting artificial teeth for the illustrious Washington. Fitch was the first American writer who ventured from an octavo volume, and Brewster after gaining reputation in this country, went to Europe where he obtained royal favor in France and a knighthood from the Emperor of Russia.

As with every enduring edifice, so with dentistry, its foundation was laid with skilful hands. The cornerstones of nations, religions, professions, and arts have always been laid with strong hands. History gives to Judaism an Abraham, Egypt a Pharoah, Media and Persia a Cyrus, Rome a Romulus and Caesar, Russia a Peter and America a Washington. Demonstrative literature and science were swaddled by a Lock, Bacon, Newton and Franklin, the Protestant faith glories in Luther and Calvin, and reformation in Wesley and Whitfield, theology in Edwards and Dwight, while the law delights in a Story and medicine in a Rusk. As early demonstrations of American skill and art in dentistry, Hudson and Hayden will stand at the head.

And the opposing forces which had to be overcome were the history of the world for six thousand years, two hundred had lived without dentists, superstition and ignorance blocked the way and protested that the teeth were better for being left alone, and I may truthfully say that that



same superstition and ignorance has not been eliminated to this day. As all can testify to the common incident, to have people offer an argument against any extra care of their teeth, reciting the condition of the teeth of their grandfathers, who died at the age of eighty years, and never owned a toothbrush, never cleaned his teeth and never had a tooth filled, and venturing with considerable tenacity the opinion that cleaning the teeth destroys the enamel, and that the sixth and twelfth year molars should receive no attention, because they are first teeth; and you cannot make any considerable inroad upon such ignorance, although you may stand at your chair and instruct and preach the gospel of righteousness during the better part of your lives, as I have done for over thirty-three years.

And so I have long since become convinced that the dental office and chair did not present the proper environment for healthful and beneficial instruction. For the failure to promote individual co-operation, after reclaiming a mouth full of broken down and useless teeth, evidences of the grandfather theory are presented again and again, showing clearly that the seed sown had fallen upon barren ground.

And it seems to me all the more surprising, when we consider the advantages of thorough knowledge through the present system of education throughout our country. This seems to be an era for advanced education and science, to the disadvantage of the practical and thorough understanding of the fundamental principles, of law, physics and hyaca. The disposition to glance over and theorize, hastening on to a brilliant examination and graduation with little knowledge of the practical *may* furnish the sequence.

**The Dentists  
of Today.**

As to the dental profession, with its literature, its institutes of learning, and all its scientific research, is it occupying as high a plane as in the days of Hudson, Gardette, Hayden and Parmley?

The answer *must* be in the negative if the entire profession is included. But to give a correct answer, the profession must be divided into two classes. The organized and those outside which I denominate as the 'others.' For the past thirty years the organized profession has been zealously working for a higher status, both scientific and educational, and have besieged the legislature for laws for compulsory elevation, in competency and skill, while the 'others' have during the same time been as persistent in endeavoring to *lower the status* and *blemish* its character. Since the introduction of nitrous oxide gas, vulcanite rubber and celluloid there has been a downward tendency for slaughter and cheapness, and today with the persistent advertising of nostrums, the trend of public

opinion is toward the practitioner whose reputation is for his ability to minimize expense, rather than for his skill. While these two forces have been acting and reacting for and against the profession, it is well to consider for a moment the cause. In the State of New York, our society has been persistent in its endeavor to create a law to force up and maintain a higher standing of proficiency, and it has been signally successful in forcing up the requirements for college education. But you must understand that the dental colleges are commercial investments, and so long as a student has the wherewith to pay his matriculation, tuition and graduation fees, they expect to graduate him whether he possess quality of brains, instincts of manhood, professional honor or not. And so he is turned loose, possessed of a legal passport to enter the practice of dentistry, although he may, as a large percentage do, and did intend to do, conduct his practice upon purely commercial lines, and at the very threshold of his professional manhood, erect a monument in the form of a glass case of gilded models and cheap rubber gums, with the inscription, "Dental Parlor," "Dental Company," "Scientific and painless dentistry by *graduates* and experts in all departments, from 25 cents up and five dollars down." How do you like the picture. Now, gentlemen, after reviewing as briefly as possible the conditions confronting us to-day, what is to be done with this opposing force, this moth that is gnawing at the warp and woof, and corrupting the character of our profession. In this district, representing seven counties, are registered 991 so-called dentists. In this society there is a membership of 110, scarcely 12 per cent. in good standing of the organized profession.

Is that a good showing? Gentlemen, you have a responsibility in this matter, and are to a greater extent perhaps than you have ever realized personally responsible.

It should be the duty of every member of this society when there is a new arrival in your territory, to see that he is brought into the society membership and thus brought under the operation of the ethics of the profession, so that if he be of a reputable mind, he may gain a respectable standing among you.

I am aware that there is a strong argument against the practicability of identifying all practitioners with the societies, for many would not pay the fee to join, or the dues to maintain a membership, neither would they voluntarily subscribe to a code of ethics that would in any manner deprive them of the blessed privilege of lowering their professional manhood.

There are mean men found in all departments of life, and unfortunately some do invade our profession, mean and unprincipled men, with

souls so small that if they could be incased in a grain of mustard seed, would make a good rattle box for a baby.

There is an incident credited to the life of Abraham Lincoln, who once received a letter asking his opinion as to the responsibility and standing of a Mr. Blank of his town, and he replied: "Mr. Blank is, I believe, a married man, which would indicate the character of his responsibility, and two children, and ought to be worth fifty thousand dollars. He is an attorney by profession and has an office for which he pays five dollars a month, a library of three volumes, which I should say were worth \$1.75 each, two chairs and a table, which would bring three dollars in the market, and there is also a rat hole that would bear looking into."

**Dental Legislation  
in  
New York.**

The State Society has a law committee which has a representative from each district society, and I say all honor to the law committee, for it has been doing good work. It has accomplished great and good results along the lines of education and protection for the public. But what has it accomplished for our profession? There, Mr. President, is the rat hole.

Our profession has received legislative recognition by the enactment of a law creating the State and district societies, for the improving and regulating the practice of dentistry, passed April 7, 1868, and revised and amended in 1895-6, defining the State Board of Examiners and qualifications of applicants for examination for the degree, for license, for registration, and also fixes the penalty for unprofessional and immoral conduct, gross ignorance, felony, fraudulent diploma, false name and false title. Also amended law of April 15, 1897, as to requirements of preliminary education, all of which is very good, as far as it goes, but does it go far enough? I believe it is credited to the Jews who clamored, "We have a law, and by our law he ought to die." But the version of today should be, "We have a law, and by our law he ought to live."

I believe that the profession should be protected, and that men should also be protected against themselves, and therefore I believe that it is feasible and practicable to secure the desired result by legislative enactment, by the requirement of all practitioners in the State and all that may hereafter enter to subscribe to a code of professional ethics; which shall be formulated by a committee of representatives of the State and District Societies, for which a bill shall be introduced into the legislature which confers the power upon the regents to issue a license to be known as the dental professional license upon subscribing to the code, and it shall be the duty of the law committee to compel application for such license, and

the penalty for a violation of the code of professional ethics shall subject the violator to a revocation of said license.

Now, gentlemen, what are you going to do about it? I am in earnest in this matter that has been too long neglected, and if no good comes out of it, I shall feel that I have done my duty, and shall have placed the responsibility upon the profession. I have but one other thought, and that is constancy to our society. Constancy to the foundation of all fraternal virtues. Webster defines constancy as "a quality of being steadfast, freedom from change, stability, fondness of purpose; as the constancy of God in his nature and attributes." As Shakespeare has it, "While thou livest, dear Kate, take a fellow of plain uncoined constancy, for he perforce must do the right."

I know of no words that so clearly and truly exemplify the quality of constancy as do those historic words that have come down to us through the ages, bright shining as the stars of heaven, and will continue through all time, like letters of burnished gold. As do those words contained in that plea of the Moabite maid, Ruth to Naomi: "Entreat me not to leave thee, nor to return from following after thee, for whither thou goest, I will go, and where thou lodgest, I will lodge, thy people shall be my people, and thy God my God.





## Second District Dental Society.

### December Meeting.

A regular meeting of the Second District Dental Society was held on Monday evening, December 12, 1898, at the residence of Dr. R. C. Brewster, Brooklyn.

The President, Dr. Kraemer, occupied the chair.

The Secretary, Dr. Ferris, being absent, Dr. Turner kindly offered to act in his place, and read the minutes of the last session, which were approved after slight correction.

I have had a case lately, that is somewhat out of the ordinary run, and may help some one else. A young woman had a sarcoma of the lower jaw, which it was necessary to remove. The deformity in such cases is very great. The jaw was pulled over, and the patient could not eat. I was asked to see if I could not supply an appliance that would take the place of that side of the jaw. We looked over a number of appliances, but found nothing suitable. I thought perhaps there would be some way of putting in a plate on the lower jaw that would be like a lower set of teeth, and yet hold the face out. I took two very good impressions of both jaws, and made an interdental splint of the regulation kind, cutting away the side of the lower jaw which was to be taken out, so that it was really a splint and a half. The thing was made, slipped into place, bandaged up and it healed very nicely. It was kept in for two weeks. During that time I made a clasp plate which went around the teeth on the sound part of the jaw. There were four gold clasps around those teeth; then the plate was run back about two inches on one side. The object of this was that the pressure and the contracting of the tissues would keep it in place, and make her articulate. I made the plate very deep on one side, and ran it up on that side, making a flange on it so when she closed her mouth the teeth would come inside of the plate. When she closed her mouth tightly, the whole thing necessarily

**Dr. Russell :**

**Prosthesis**

**After Removal of Jaw.**

articulated. This was in June, and I thought in the fall I would make another fixture; but I have seen her several times since, and she was very well satisfied, and said she could use that better than she could her own jaw. From a full view of the face no deformity is noticed but at the angle there is of course a great deal of depression. In a case of that kind, I think a flange could be used, and a substitute made for half of a lower jaw, and there would be no deformity at all. I have not found it necessary so far to change the apparatus, and it may be a year or two before I make any changes. She can eat with it, and enjoys all the comforts of a fairly well person.

Dr. Ames, of Albany, president of the New York State Dental Society, then read the paper of the evening, entitled: "The Dental Profession."

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### Discussion of Dr. Ames's Paper.

**Dr. Jarvie :**  
**Legislation and**  
**Ethics.**

We are all very glad indeed to have had the President of the State Society with us tonight, and to have heard his very earnest words. He has very strongly touched upon some of the evils that beset us, particularly the evils of the dental parlors. During the thirty years' existence of the State Society, the Second District Dental Society has always been organized and united in the support of anything that would tend to elevate and advance the interests of the profession, and if the President of the State Society can formulate and have passed through his influence any law that would tend to modify somewhat the exhibition of gold that we see coming from the dental parlors, he would find this Second District Society supporting him very heartily. I do not know that any legislation can affect that, but it would be possible to render it necessary for every man to sign a code of ethics. He has told us there are nine hundred and ninety-one men registered in this district, and only about one hundred and ten of them are members of this society. That would leave over eight hundred and eighty dentists in this district alone, who have never signed any code of ethics, and a great proportion of them are not living up to any code of ethics. Just that proportion of dentists in this State would oppose any legislation that would compel them to sign and live up to a certain code. I speak of that as one of the difficulties to be met in attempting legislation of this kind; if that difficulty can be surmounted, and the dental parlors suppressed for a time, we will be benefited, but just as sure as fate, the sore will break out in another spot. In every profession there is a large number of men who, even if they signed a code of ethics, would not live up to it; that is the

difficulty that we have to meet now, and we will always have to meet it. Of course, legislation will affect it somewhat, but the moral obligation, if it can be brought to bear, is the only matter that will avail very much.

The subject presented tonight is full of truth and  
**Dr. Johnson.** bright thoughts, and contains a practical suggestion.

As to the possibility of it, I cannot say. I do know that there is one thing that cannot be done by legislation, and that is, they cannot make a gentleman out of a man by any form of legislation. The thing that is bred in the man, and the character and quality of the man, will show no matter how much education he has. You may educate him for six years before he shall be allowed to practice dentistry, and if he is by nature mean and contemptible, and low in his desires and ambitions, he will show it the first year he is out in practice. I doubt very much if it is possible, therefore, to make a gentleman or implant in a man gentlemanly instincts by any code of ethics or by any legislation.

I would like to ask Dr. Ames if it would not be  
**Dr. Russell.** possible to have the future diplomas so granted that all recipients should sign the code of ethics, and in case of violation forfeit the diploma.\* In that way it would cut off the fresh crop. It might not do much good now, but in twenty years it would show that it was a benefit.

It has always been my policy to take the whole  
**Dr. Ames.** loaf if it is possible to get it, but if you cannot get it, take a half loaf, and if you can only get a slice, take that. The suggestion of the doctor is good, and it is one that has not escaped me as a "slice" operation. I have been interested in the furtherance of legislative schemes on the great democratic principle of the greatest good to the greatest number. That I believe is what democracy means. I have been laughed at and have had men say I was visionary. We have succeeded in what has been called unconstitutional legislation. To compel the practicing dentists of today to apply for the professional license, might possibly be an obstacle; should it prove to be an obstacle, it can be eliminated. We have fifty-three colleges and schools in this country today turning out upwards of two thousand graduates a year; they will within the next five years turn out four thousand, and they will increase in proportion every year. In the State of Illinois legal charters bearing the seal of the Secretary of State, are granted to people who have no place of conducting a medical or a dental school or any institution of learning, yet operates under some name, say the "University of Illinois." The man carries it right in his pocket, and for a

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\*Such a law is in force in England.—Editor.

ten-dollar bill, you can get your diploma and practice anywhere in the State of Illinois. That has been going on for some time, and is going on now. The Faculties Association are endeavoring to unearth these disreputable proceedings, and I trust they will be able to codify some methods by which that thing will be eliminated forever. You cannot stop the multiplication of dental schools. We are likely to have one in Albany, in Syracuse, in Brooklyn. They are commercial institutions, and are conducted for the dollars that can be made out of them. Unless something is done, the dental profession will sink down; I have seen the time when I was ashamed to admit that I was a dentist. Yet we have a profession which I claim today is doing more good than any profession in the world. If there is anything that is disappointing in this world, it is medical practice. Very few things can be done with positive results. It has really the stamp of the name it bears—practice. In dentistry we gain positive results. In law, it is “practice.” No man goes into court with the perfect knowledge that he will win. You may, or you may not. You call a physician and he goes through the whole list of *materia medica*, and doctors every symptom, and changes the medicine continually until he hits something that is in line with his diagnosis. In dentistry you can diagnose the case and have positive results; therefore I place it pre-eminent today.

There may be other thoughts that are better than those I have given voice to, and if so, it is my desire to hear them. I want to know what is best. If it is a cesspool which if stirred only becomes worse, then we must do nothing, but if there can be any suggestion, if we can get out of this any method by which the status of the profession and the high standard of its character shall be maintained, that is what I am after. In Albany, men have practiced since I have done so, for over thirty years, and some have practiced always on this low line. They did not hurt me or any one else until they began to advertise graduates, and when they begin to emphasize that, where do you stand with your D. D. S.? Is your degree holding you up? I do not know of an M. D. S. who has prostituted the profession; for that reason I admire the M. D. S. of the State Society, and it is the only title that I have any respect for today. I want you men who have the D. D. S., who are striving on the lines of professionalism, to be held up so that you will be proud of your degree.

I appreciate most heartily Dr. Ames's desire to  
**Dr. Jarvie.**      elevate the status of the profession throughout the State, but I would not have the members of the profession in this room feel too much depressed. We are not such a bad lot, and in relation to the other professions, we are not in a bad way. The law



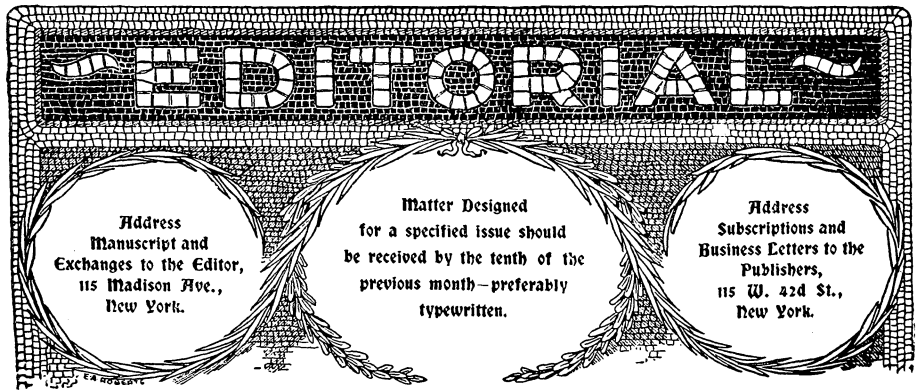
of this Society places the profession of dentistry as high as any of the other professions—law, theology or medicine. To be admitted to a dental school in two years from now, will require a preliminary education equal to that required to enter Yale or Harvard. Not only will it require that to enter the dental schools in this State, but no man can commence the practice of dentistry in this State from any other school, who has not had a preliminary education equal to that; so as far as the law can provide for this profession, we are pretty well cared for, and we stand equal to any other profession. Unfortunately, the other States in the Union do not require such high qualifications as this State, but they are looking up to New York State with a strong desire to be with us.

Next month Prof. Kirk is to be here, and he will speak on the unification of dental laws. I do not know the course of reasoning he will pursue, but I know what his views are regarding this matter, and I am sure it will be this: to work up to the standard of New York State, to have one law practically which shall require all that the State of New York requires now, and to get if possible one State after another to have an act similarly worded. So, gentlemen, do not feel too badly. We are not such a bad lot, and the ones that are coming in are not so bad. You cannot make a man of honor out of a mean, low soul, but you can require of him to have the education, and then the law will hold him responsible if he does not practice up to the requirements.

**Dr. Hill.**

In England, when the men graduate, they take a certain oath. That oath of itself is a code of ethics since they agree not to do anything unprofessional.

Two years ago a gentleman who graduated from one of the colleges there was taken up just on that oath that he had given when he left the college, and his diploma was taken away from him. That is the common law of England, and the common law of England is, as a rule, very good law in this country. If our colleges would do that, that is all that would be necessary. Most of the colleges demand something of that kind. The question is whether we could reach it in that way. I am not very strong on a code of ethics, for the reason that a gentleman needs no code of ethics. An unprincipled man may sign one a thousand times, and what good does it accomplish? The code of ethics is in a man's own heart, and his desire to do what is right. The best thing we can do is to get men into this society and have them associate with us. If a man will come into this society and associate with our members—gentlemen and good fellows—he will not do many mean things. He may do one or two, but he will soon feel ashamed and try to do better.



## The Porcelain Era.

A boy stands up in a boat and casts a stone into the middle of a lake, and the resulting circles spread, it is said, even to the most distant shore. Dr. Norman W. Kingsley contributed a brief article to our last September issue, entitled "Gold Not the Ideal Filling," and the circles of interest aroused thereby have encompassed the continent.

Indeed it is marvelous what far-reaching possibilities may hang upon a few words penned by man. It is doubtful whether Dr. Kingsley imagined that his little paper would meet with such a reception; his friend, Dr. Jenkins, of Dresden, had spent years of labor and a great deal of money searching for a means of successfully inserting porcelain fillings, and having achieved success, Dr. Kingsley undoubtedly was prompted merely to give him credit and gratulation.

Within a week of the appearance of the paper, however, letters began to come in. Letters from New York, followed by letters from Illinois, from Colorado, from California, from Maine, from Texas, from every State in the Union. Letters addressed to Dr. Kingsley, letters addressed to the publishers, letters addressed to the editor. In all fully two thousand letters of inquiry were received. *And they are still arriving.* All ask the same questions: "Is it true that porcelain fillings can be successfully made?" "Is it true that color can be matched?" "Is it true that they will be permanent?"

The significant point of all this is that though the Gilded Age, as described editorially last month, has long existed, this wonderfully widespread interest in porcelain as a filling material proves that the better men in the profession display gold in the mouth from necessity rather than from choice, and that they long for the Porcelain Era.

Well, the Porcelain Era has dawned. Throughout the waning century men have sought for the Ideal Filling, and as the last years pass from us we grasp the *fin de siècle* method, which uses low fusing porcelain.

It will be observed that low fusing porcelain is mentioned. There are, however, two methods of making porcelain fillings. Some advocate high fusing body, while others prefer the low fusing. To manage the former requires an electric oven, while the latter may be fused in a small muffle over an ordinary blow-pipe.

The advantage claimed for the high fusing material is that it is less liable to shrink, and that therefore it is more likely to prove an absolute fit; moreover, shapes moulded or carved are well preserved during the baking. But this high fusing body requires that platinum shall be used as a matrix, and while a few skilful men have performed marvelous operations, producing the most artistic results, nevertheless it is safe to say that the low fusing body baked in a matrix of gold can be made to yield better results, with a lesser degree of skill. This does not mean that the unskilled may hope for fine fillings merely by adopting the low fusing material. The contrary is true. A great deal of patience as well as skill will be required of the beginner before he inserts one absolutely perfect filling. Yet if he persevere, in time he will achieve the desired end. Having acquired a familiarity with the material, and having become expert in its use, he will then discover that low fusing porcelain is his servant, even as gold is, and that it must do his bidding. He will find many cavities possible to be perfectly filled. He will not confine himself to labial cavities in incisors, but he will fill those in the approximal surfaces. He will be able to perfectly restore cuspids and bicuspid. Even where two bicuspid may have lost adjacent approximal surfaces, he will find that he can restore the shapes of each, making all edges practically invisible and forming knuckles in absolute contact. These trying cavities, especially where the pulps are yet living, making the retention of gold, without encroachment

upon the pulp almost impossible, may thus be filled with little trial to the patient, and with a certainty that no after troubles will arise from the shocks of thermal changes. Some men may accomplish all this with high fusing material, but certain it is that more will succeed with the low fusing. But whichever is chosen, it is also certain that within a few years no dental establishment will be fully equipped without the means and material for doing this beautiful work. For even as the interest aroused by Dr. Kingsley's paper has induced hundreds of men to begin inserting porcelain fillings, so it is also remarkable how quickly the patients for whom these operations have been performed, have gone among their friends and announced the new departure, with the result that, in New York at least, there is a growing demand for porcelain fillings. It is well known that as New York leads so the rest of the country follows. Therefore do we announce the dawn of the Porcelain Era.





With malice  
toward none,  
with charity  
for all

Questions will be answered in this department, provided the answers would be of general interest. After publication our readers are cordially invited to make further reply, criticism or comment.

In this issue, in the department of Contemporaneous Literature, we republish from the *Brooklyn Medical Journal* an important article by Dr. J. Y. Tuthill, a prominent physician of Brooklyn. The paper was read about a year ago, and attracted considerable attention locally, many dentists having been present. At that time a strenuous effort was made to procure a copy of the paper for publication in our pages but the author would not antedate the publication in the medical journal, claiming that his essay had been prepared as a warning note to physicians rather than to dentists. Thus it has been necessary to wait for its appearance in the medical journal.

**Are  
Amalgam Fillings  
Dangerous?**

The claim that a hidden danger lurks in the mercury present in amalgam fillings, is a spectre which has arisen to haunt the dental world again and again. The dental profession have thought to lay this ghost, but it persistently arises. Usually it is ushered in by some homeopathic medium, the followers of that school having unbounded faith in the toxic power of mineral poisons, however attenuated the dose. But now the discussion has once more been opened by a phy-

sician, this time a "regular," who tells us first of his own experience of long suffering, and wonderfully prompt recovery upon the mere removal of the amalgam fillings in his mouth. After this he proceeds to recount equally marvelous neural disturbances of somewhat phenomenal character discovered by him among his patients, all alleviated, yea, eradicated by the same simple method of removing a few amalgam fillings. The dentists who took part in the discussion were not convinced by the array of facts presented, yet it must be confessed that their arguments were equally impotent in turning Dr. Tuthill from his preconceived views, notwithstanding the fact that Dr. Brewster contributed a brief resume of the subject which was classic in style and weighty with facts of history. An analysis of the discussion shows that a physician offered the best reply to Dr. Tuthill, by calling attention to the fact that the described symptoms of the suffering patients of Dr. Tuthill do not very well accord with those to be attributed to mercury.

If we carefully analyze the paper of Dr. Tuthill we discover as a first impression the record of several persons, suffering in diverse ways, exhibiting symptoms uncommon in character and of mysterious origin, all of whom are rapidly restored to health by the mere removal of amalgam fillings from their teeth. There is no reason to doubt that so much is accurate and a correct record as far as it goes. From the main fact here presented, to-wit, recovery following the removal of the amalgam, the doctor deduces that the amalgam, or the mercury therein, was the cause of the alleged neurosis. Is the dental world ready to accept this deduction, or, is the deduction a true corollary to the postulate?

A closer inspection of the record shows us first that the recorder is prejudiced, and consequently not the best investigator. This without any disparagement of the essayist morally or mentally. We are all human, and few escape the influence of prejudgments.

In this instance the investigator first suffers for years; second, conceives the idea that he is easily influenced by mercury even in attenuated doses; and third, removes the amalgam from his teeth, hoping to recover from his neurotic condition. He does recover, but in concluding that the recovery depended upon the removal of the amalgam, he overlooks entirely the value therapeutically of the psychical agents "hope" and "expectation" (see "Influence of the Mind on the Body," by Hack Tuke, M. D., London), especially upon neurotic subjects.

In this mental attitude the doctor is ready to apply his new remedy upon others, and he finds numerous subjects, patients suffering from mercurial poisoning due to the presence of amalgam in their teeth. It is noteworthy that within a comparatively brief period he has found so

many examples of that for which twenty thousand dentists have vainly searched for twenty years. All of these cases are cured, and the doctor is more sure of his theory.

Certain flaws in the record might be pointed out. First, it does not seem to matter in these cases how many or how large the fillings may be. In one case suffering which covered a prolonged period was relieved by the removal of but one filling. It would be necessary to know the weight of that filling, the maximum quantity of mercury which could have been present originally without preventing amalgamation, together with the minimum quantity which it must have retained to have remained in the tooth as a filling. The difference would show the maximum quantity which the amalgam could possibly have yielded to the system. We could then judge whether such a dose, absorbed in the stated period, could possibly have occasioned the symptoms attributed to this one filling. Such data is wanting from the record, and without such data no final logical conclusion is possible.

Second, the doctor claims that amalgam fillings do not oxidize along the surfaces which are in contact with the tooth substance. In this he has been misinformed. Amalgam not only does oxidize on these surfaces, but it is exactly this oxide which stains the tooth, a common and potent objection to amalgam from esthetic standpoints.

Third, the doctor explains that the mercury enters the body through the circulatory system of the teeth, yet he does not tell us in his records whether the fillings removed were taken from teeth having living pulps, or whether from pulpless teeth. If from the former, the fillings could not have been very large, and so could not have carried much mercury; while if from the latter, however large the fillings, there was no circulatory system present in the teeth to serve as the bearer of the poison.

Finally, we are not told whether the teeth from which all these amalgam fillings were removed were healthy, or otherwise. Unless the fillings were taken from healthy teeth, and replaced by gold without alteration of the cavities or other treatment, there is more reason to believe that the constitutional symptoms were due to local disease the cure of which relieved the distant troubles, than to suppose that mercury played any part in the cases. Upon the evidence offered the verdict must be "not proven."

In view of the controversy aroused by almost

**Obtunding by** simultaneous placing upon the market of preparations of cocaine in ethereal solution, one maker claiming superiority for a neutral solution, while the manufacturers of "Potassocaine," ask recognition of superior merits of their preparation by reason of its *alkaline* reaction, the following opinion of one of the recognized authorities on the subject of cocaine is timely:

"M. Bignon (Bull. de Therap.) formulates the results of his experimental researches as follows: (1) Cocaine parts with its valuable anaesthetic properties in a decidedly acid solution. (2) In such solutions, its power as an anaesthetic is not destroyed but becomes latent. (3) The anaesthetic property is fully restored by simply neutralizing the acid. (4) All the mineral and organic acids used in the experiments operated in the above manner. (5) The anaesthetic energy of cocaine attains its maximum when, all its acid having been neutralized, the alkaloid is held in suspension by a slightly *alkaline* liquid; this preparation the author calls milk of cocaine. (6) Milk of cocaine is obtained by precipitating the hydrochlorate or other salt of cocaine by a slight excess of carbonate of soda. The bicarbonate does not act so well. (7) Most of the cocaine salts, especially the hydrochlorate, retain an appreciable quantity of acid; hence, their solutions do not possess the full anaesthetic potency of the alkaloid; i. e., a portion of the same remains latent. (8) The anaesthetic power of cocaine salts varies greatly in different cases. Some crystallized hydrochlorates, though perfectly pure, are so acid that 10 centigrams, simply dissolved in water, are no more efficacious than half the quantity when neutralized and made into milk of cocaine. (9) The surgeon's first care, therefore, before using a solution of any cocaine salt, should be to assure himself of its neutrality; this can only be obtained at a sacrifice of limpidity; it is accompanied by some degree of opalescence. (10) The difference in the quantities required for the production of anaesthesia is in most cases explainable by the difference in the acidity of the solutions employed. (11) The effect of subcutaneous injections of milk of cocaine on the human subject has yet to be ascertained. Experiments on dogs have given encouraging results in this direction, but the author has not succeeded so far in localizing the action."

Anaesthesia was given to the world by Dr. Wm. G. Morton, a dentist. The use of the same agent, *ether*, in combination with cocaine, was first suggested by Prof. Morton, son of the discoverer of ether, under the name of "Pressure-Anaesthesia," in his discussion before "Our Mountain Meeting," in 1897, when he spoke as follows:

"I think I can say another word on this subject of benumbing sensitive dentine, that may be of value. I want to suggest a little plan that I think anybody can put into operation in a certain percentage of cases, and if it is only ten or twenty per cent, it is an agreeable thing to have an alternative procedure. Every dental practitioner has been in the habit, where possible, in order to bleach a tooth, of putting in a piece of absorbent cotton and sealing it in, the cotton having on it some peroxide of hydrogen and sulphuric ether. The sulphuric ether by evaporating is



supposed to force the peroxide into the tooth, and causes bleaching. That may be a false doctrine, but it sounds plausible enough. It occurred to me that I might dissolve hydrochlorate of cocaine in ether and thus in the same manner produce anaesthesia, but I tried it and found that the cocaine salt would not dissolve in the ether. The idea clung to my mind for some time, and I finally dissolved my cocaine in guaiacol. I made a strong solution and added half and half of sulphuric ether and there was no precipitation of the cocaine. I had a very small test tube on the table, and I put some of the solution of guaiacol sulphuric ether and cocaine into that tube, pressed the mouth of the tube on my arm and asked my assistant to time me; I held it there quite steadily for five minutes, the heat of my arm and of my hand in the meantime causing evaporation of the ether, then tipped it over, wiped off the superfluous guaiacol and sulphuric ether, and, taking a needle, I found my skin was numb. I had made an experiment that established a new order of things, which I have christened pressure-anaesthesia. I think it is for you to judge, but there will probably occur to you cases where you would prefer this simple solution to using the battery. I throw out this suggestion, which I myself have verified by experiment, and hope some of you will try and report on it."

The question of making the suggestion of Prof. Morton commercially available to the profession was taken up by the Consolidated Dental Manufacturing Company, and through the able assistance of the Messrs. Schieffelin & Co., the cocaine experts of the United States, "Potassocaine" resulted, which is meeting with unbounded success in everyday use. At the same time due credit was given in these pages to Dr. Morton for having first suggested "Pressure-Anaesthesia." This course seemed honorable and proper, and was duly appreciated by Dr. Morton, who promptly wrote a brief note of thanks. Nevertheless, there is a persistent whisper heard wherever dentists congregate, to the effect that the Consolidated Company are making "an unwarranted and unauthorized use of Dr. Morton's name." The only use of Dr. Morton's name has been in crediting him with the suggestion of producing anaesthetic effects by combining cocaine with ether, and this was warranted. Many drugs or preparations thereof have resulted from suggestions of physicians, but seldom if ever have the drug houses given credit to the physicians, preferring perhaps to let it be supposed that all their best products are evolved from the inner consciousness of their expert chemists. A departure from this custom can hardly be called unwarranted. As to the authority for using Dr. Morton's name, he was asked, "Did you authorize the use of your name?" and his reply was, "It is not necessary for me to authorize people to give me credit for what I have done." Hence the queer little whisper that the use of Dr. Morton's name was unauthorized.



## Mercurial Neurosis Resulting from Amalgam Fillings.

By J. Y. TUTHILL, M.D., Brooklyn, N. Y.

*Read before the Medical Society of the County of Kings.*

Mercurial neurosis is a field of pathology which has not received the investigation it deserves by the medical profession. While the poisonous effects of mercury have so long been recognized that I need take no time in rehearsing them, yet there are certain causes affecting the nerve-centers which demand more thorough investigation than has yet been given.

**Serious  
Charges Against  
Amalgam.**

In presenting this subject to the Society for consideration I want to show that by the use of amalgam in filling teeth there is a possibility of mercurial poisoning, which seriously affects the nerve-centers, impairs locomotion by heaviness of limb and stiffness of joint, gives rise to obstinate diseases of the skin, and makes a mental wreck of its victim, whose imaginations and hallucinations are more than my pen can describe.

Physical examination reveals nothing to assist the physician in making a diagnosis of his case, as all the functions are usually well performed. There is, however, nervous depression, irritability, unreasonableness, an inability to overcome and throw off feelings of oppression which settle upon the patient and hold him as in the clutches of despair until his ambition is broken, his energy is gone, his purpose is lost, and he drifts for lack of power to concentrate his actions and assert himself as a force in the world. There are shifting, shooting pains here and there from head to foot, affecting sometimes one part and then another; numbness of hand, foot, or jaw, heaviness of leg, arm, or head, with an almost inability to move them, and a feeling as though one would fall or lose consciousness. Again there is a light, floating sensation as though moving in air. There is mental excitability as well as mental depression; perplexing events cause the highest degree of excitement, ordinary conversation sometimes causes complete confusion, headache, palpitation, intense solicitude, and anxiety, without reason for it. Such are some of the symptoms attending these cases.

To bring this pathological condition more clearly to your thought, allow me to cite a few cases which have come under my observation during the past few years, and you will pardon me for alluding to my own individual case which first opened my eyes to this subject.

**Personal Experience  
of the  
Author.**

During the winter of 1884 and 1885, when working far beyond the limits of good judgment, and averaging from October 15 to April 27, not more than from four to four and one-half hours' sleep per night,

I was attacked February 1 with neuralgic and rheumatic pains, usually short in duration, lasting from ten to fifteen minutes to three or four hours, affecting chest, back, arms, and legs. My work was arduous, and the professional demands upon my time and strength prevented my getting adequate rest. With failing strength and energy, I continued my daily routine of work until April 27, when I was in a state of physical and mental collapse. I sought a quiet place for rest, and April 28 went to Saratoga Springs. Arrived there at 3 p. m., and in half an hour was in bed. I had a good night's rest, and after breakfast the following morning took a stroll through the village, which at this season of the year is the sleepest place of its size that I know of. Then, thought I would write home news of my safe arrival and a good night's rest. But never was I more surprised than to find that I could not write more than two or three words when my hand would be so numb that I could not hold the pen, until I had rubbed it for some minutes. The same processes were repeated over and over again until I succeeded in writing a short letter. This condition continued, with some abatement, for many weeks and, in much less degree, for years following. I remained in Saratoga for ten days, sleeping thirteen and fourteen hours in every twenty-four, then returned home and resumed practice feeling much improved.

An eruption which appeared like psoriasis, and which had troubled me for several years, became more troublesome and refused to heal, much to my annoyance and chagrin. All the foregoing conditions continued up to the spring of 1889, when a persistent headache, often of neuralgic character, continued for two or three months, which was relieved by taking a four-months' trip abroad.

Since that time I have had average health, with occasional numbness of hands. The handling of steel would almost paralyze my hands for some minutes to come. The eruption continued the same, resisting all treatment that my own ingenuity could devise or that my professional brethren, who took a kindly interest in my case, suggested.

The numbness attended with pain in the fingers, was thought to be a form of gouty neuritis. Following their advice, I took such remedies as

they prescribed, sometimes it seemed for the better, but with no permanent improvement.

In the summer of 1895, spending the month of August on the Shawangunk Mountains, I was applying to the eruption several times a day, a lotion of bichlorid of mercury, which accomplished more for healing than anything I had ever used; but while the eruption was fast getting better, my hands were rapidly losing their power and I could not rely on holding anything, nor could I pick up small things like pins, needles, or twine, because of the numbness. At this juncture, it occurred to me that I was absorbing mercury, and that mine was a case of mercurial neuritis or paralysis, the result of this absorption, and that the eruption was a mercurial psoriasis. Returning to the city I laid the matter before several physicians, who thought I was mistaken, as my gums showed no evidence of mercurial poisoning, and on their advice resumed the use of the bichlorid lotion, but was compelled to abandon it in a few days because of the numbness which followed. I reported my condition. They then agreed with me that the mercury affected my system in an unusual manner, but thought that I had an idiosyncrasy, and that it would probably not affect more than one in a thousand under the same circumstances.

Being thoroughly aroused as to my state, and having several amalgam fillings in my teeth, I soon came to believe that my entire condition, the numbness, the rheumatic pains, and the eruptions were all due to the action of mercury absorbed from those fillings. So I decided to have them removed, and the work was done in May, 1896. In two weeks I felt like another man; it seemed as though a great weight had been lifted, and I was once more free from an oppression which had hung over me like one long nightmare for years, handicapping, restricting, and restraining me on every hand.

My improvement has continued from that time to the present, the numbness growing less and less, the eruption disappearing until there is less of it than at any time in fifteen years.

I do not imagine that all the mercury that I absorbed from those fillings which I carried for thirty-eight years, is out of my system, but from my general improvement, believe it is growing less all the time, and I am feeling better than at any time since the spring of 1885. Having lived for eleven years on the ragged edge of hope and despair, and thus secured by freedom from a bondage worse than human slavery, I could appreciate the sufferings of others when they rehearsed experiences which I had realized. As a natural consequence, I readily recognized the same enemy to their peace and happiness which had shattered my own.

**Experience  
of a Patient.**

In December, 1896, I was called to see Miss F., aged thirty-three years, who had been in excellent health previous to an attack of la grippe in December, 1892. Since then her nervous system had been much disturbed, and she had come to be melancholic and to withdraw herself from her family and friends, seeking the seclusion of her room—refusing to go out or to associate with others, or even with the members of her own household. When I was called, she had been treated by five different physicians with no improvement. I treated her for indigestion, torpid liver, constipation, etc., for ten weeks, with no improvement in her mental condition. Then numbness of hands and stiffness of jaws led me to examine her teeth, when I found five amalgam fillings which I believed had produced a mercurial neurosis. I gave it as my opinion that her condition was due to the effect of mercury upon her nervous system absorbed from those fillings and advised their removal. She was stubborn and for some time refused, but yielded in May, 1897, and had the work done. She has steadily improved since that time, and her family say that she has not been so well in five years as now.

**Case 2.**

In the early part of last September, Miss E., aged eighteen, was brought home from a three-months' sojourn in the country, with all the indications of typhoid fever. Intestinal antiseptics, tonics, etc., arrested the progress of the case, but an unaccountable languor, debility, loss and flabbiness of flesh with drowsiness, continued for several weeks, she sleeping eighteen and twenty hours out of twenty-four. My case otherwise appearing well, her sluggish gait, heaviness of limbs, and stiffness of jaws, led me to examine her teeth, in which I found nine amalgam fillings. Being convinced that these were retarding her recovery, I advised their removal and the substitution of gold. When the fillings were taken out she became more wakeful and animated, and has continued to improve although still suffering from the effects of the absorbed mercury.

**Case 3.**

Miss K., a young lady of culture and refinement, was brought to my office December 1, 1887, suffering from extreme nervousness, which had continued for three years. She was restless and could not apply herself for any length of time to any one thing, sleepless, irritable, hysterical, etc. Having made a thorough examination of her case and being assured that all her functions were normal, I examined her teeth and found sixteen amalgam fillings, several of them in teeth containing gold fillings. Believing this to be a case of mercurial neurosis I told her, and her mother who accompanied her, that the case put me in mind of what I had read in "Ziemssen's

Cyclopædia" a day or two previous on mercurial poisoning, and I read to them, viz.: "Essentially the condition is characterized by great mental excitability of the patient to external impressions. Every unexpected or perplexing event excites him in the highest degree. The visit and the conversation of the physician put him into a state of complete bewilderment, even to syncope; the adult patient grows pale and stammers in answering the simplest questions. To perform his allotted task requires the greatest effort, or is even impossible if he sees or thinks he is being watched. There is also great solicitude and a feeling of anxiety without any reason for it. There is sleeplessness, or sleep which is restless, frequently broken and disturbed by frightful dreams, headache and palpitation. In the severer forms there are frequently hallucinations, usually of a frightful nature. When perplexed or excited, traces of tremor are often perceptible in a slight twitching of the muscles of the face at the corners of the mouth." Having heard this, she remarked that it was a perfect description of her case in every particular, except that she had not had the hallucinations there mentioned. Following my advice the fillings were removed and the young lady has improved very rapidly to the present time, all her nervous feelings having disappeared. Indeed, her mother tells me that she manifested none of her nervous troubles since the removal of the fillings.

**Case 4.**

In February, 1897, was called to see Mrs. N., who was extremely nervous, with neuralgic pains in the chest and palpitation of the heart. Upon looking up she felt as though she were falling backward. Had heaviness of limbs, loss of memory, and found it difficult to think and harder still to put her thoughts into words. Numbness of hand or foot, a sensation of floating, and a feeling that she would die, were common experiences. I did not see her many times before I examined her teeth, and found one large amalgam filling in a lower molar, which I advised her to have removed, but doubting its necessity she kept it until November. Here I wish to read a letter sent me several weeks ago:

"DEAR DR. TUTHILL:

"I wonder if there is another woman in this world who has had all the peculiar feeling that I have had within the past two years? You know that I am one of the healthiest-looking mortals, have good appetite, sleep fairly well, etc., yet for all this time I have suffered from such awful feelings. I was afraid to go out alone, or be alone, and in constant fear that something dreadful was about to happen. I suffered much from palpitation. Sometimes, when sitting in a street-car, the people would suddenly begin to look queer, the car crooked, and I would look around at each

one to see if any one realized the dreadful condition of things. I had also light, floating sensations, and at times it was hard to talk, to think, and speak in sentences. When lifting my eyes upward I felt as though I were falling backward. Then my limbs were so heavy, my memory seemed to be gone, and I often felt dazed. Even when conversing with friends, or sitting at the dining-table, such a horrible feeling would suddenly seize me and I thought that in a moment I might fall down dead. I became hot and cold and sick, and would have to rise and walk about till it passed over. The feeling that I was just about to die often came to me with sensations that I cannot describe, but such as I should imagine a person dying would have. It began at my feet, a numb, cold, creeping feeling, and seemed to be hardening all over. Two or three of these spells I would have in a day, lasting from ten minutes to half an hour.

"You told me last spring that if I would have an amalgam filling in one of my teeth removed, a large part and perhaps all of these nervous troubles would disappear. But it seemed so absurd to me that I hardly gave it a thought till you urged it again this fall. While my husband was in one of the Western cities he happened to be in a large Dental Association and asked the president if he had ever heard of amalgam fillings causing nervous troubles. He replied, 'Yes, we have. It is not common, but some people are poisoned by the mercury, as I can prove,' and then cited the case of a man in that city who was a nervous wreck, given up by several physicians. At last one doctor said he believed him to be suffering from mercurial poisoning, and, upon examination, found seven amalgam fillings in his teeth. They were removed and from that day the man began to improve, and is a strong, well man today, scarcely knowing what a nerve is.

"So my husband wrote to me to take your advice and have the filling removed. I did so about two months ago. Immediately I felt better and coming home felt as though I could have walked to Beersheba and not have fallen. My buoyant feelings have not lasted, however, and some days I am almost discouraged. But I know that I am better. I have not had one of those awful dying sensations, nor do I have nearly so much of my nervous troubles. I can go downtown and to New York and do many things that I could not do before I had the amalgam filling out. Still I do have days of some of the old feelings and fears, but they pass away more quickly. I am living in hopes that it will be as you said, 'They will all be gone to stay away, in time.' But as the filling was in two and a half years, I could not expect to be cured in two months.

"Oh, Doctor, how I wish I had taken your advice last spring and saved myself the sufferings of the summer and fall! I wish I had never

had it put in my mouth. No dentist could put in another for any amount of money. I want to thank you with all my heart for insisting upon my having that filling removed and bringing brightness again into my life. Days when I feel well I am the happiest woman living. I only long to feel entirely well, and trust as the poison passes off that I shall.

“Very gratefully yours,

“MRS. N.”

**Case 5.**

In July last I was called to see Mrs. H., aged twenty-six, who was in a very excitable condition, afraid to go out alone in the street or stores lest she become unconscious and be taken to some hospital. Upon looking up she felt as though she were falling backward; when looking down, as though falling forward; when standing still, as though she were going to pieces; when lying in bed, as though floating toward the side wall; when sitting in a chair she often felt as though she were dead all over, and that it would require the greatest effort to make any movement. Her troubles began in the fall of 1895, with pains in the back of her neck and about the lumbar regions followed by pains in her left thigh and arm, which would last from a minute to one or two hours and then pass off to reappear there or elsewhere at irregular intervals. In the spring of 1896 she complained of stiffness of the jaws, of her left hand and foot going to sleep, with continued numbness of the third finger of the left hand. The left side of her head and the left ear would often become numb. The large toe on the right foot would be numb for weeks at a time. She also complained of her limbs being heavy, like lead, and at times it was difficult for her to raise them. There was loss of memory, the eyes looked dull and heavy, the skin had a dingy look which washing did not improve. Feelings of dread and fear lest some calamity might befall her, made her afraid to stay in or go out alone, which she had ceased to do for more than a year. I treated this lady for several weeks without making any progress on the case. Then I examined her teeth and found nine amalgam fillings, which I believed had more to do with her condition than anything else. I therefore advised the removal of the fillings and that they be replaced with gold or bone. The work was done. In less than a week she began to improve; in three weeks you would hardly have believed her to be the same woman. All her symptoms have abated; the numbness, the heaviness of limbs, the constant fear, the falling tendencies, the stiffness of jaws, have disappeared, and she goes out alone. There is a buoyancy and vivacity in her manner which shows that her hopes and anticipations are bright. Her skin looks clear and healthy, her eyes sparkle with expression, while her memory is true to her as in former days. Since the removal of the amalgam she has gained



twenty pounds in weight. I might say in passing that nine physicians had treated this case before it came to me.

I might describe several other cases, in one of which the fillings were in between twenty-five and thirty years, and the toxic effects manifest for a dozen years; but those already given are a sufficient illustration.

Members of the dental profession who are so freely using amalgam tell us that over the surface of each filling there is an oxidation which prevents any possible absorption of the mercury. Fillings which have been removed are bright, where in contact with the cavity, indicating that this oxidation occurs only to the exposed surface and not to that which comes in contact with the structural parts of the teeth. The circulation in the teeth is continually in contact with the unoxidized surfaces of the amalgam and is constantly receiving some mercurial taint which is carried throughout the system. As the nerve-centers are most impressionable to its toxic effects, we find neurasthenic conditions chiefly resulting.

It is not my purpose at this time to indulge in theories as to how these results follow the use of amalgam, but to merely state the facts. While many having these fillings seem to be exempt, others suffer from the subtle effects of the mercury. This is clearly proven by the cases I have cited, which have come to my knowledge during the last two years. So long as the system keeps in vigorous condition many feel no ill effects of the poison, but when from any cause it falls below par, either from over-tax or from disease, the toxic effect of the mercury becomes dominant, with those susceptible to it, and gets the mastery of the nervous system, to be followed in many cases by the train of symptoms mentioned above.

Although the number of cases may be comparatively few, they deserve as thoughtful consideration as would be given the subject if mercurial neurosis were more common. I doubt not that our insane asylums have many an inmate because of a mental state developed by amalgam fillings, which produces excitation or sluggishness of brain, impairs thought, destroys memory, blunts perception, and relegates to despair what otherwise might be a bright and brilliant career.

To insist upon a patient's enduring the agony, torture, and expense of having these fillings changed for gold, requires considerable nerve, with positive assurance of a correct diagnosis, for in case no improvement should follow the physician would be a subject for wholesale condemnation, and branded as a crank. Fortunately for the writer, in no instance has he advised the removal of these fillings where a marked improvement has not followed in a few days. It would be unreasonable to expect the relief to be complete and immediate, for the removal of the fillings does not remove the mercury which has been gradually absorbed into the system

during months and years of contact with the amalgam, and which has seriously affected the nerve-centers. But it does stop the supply, and when that is cut off there is an abatement of all the more prominent symptoms, followed by a marvelous improvement, and the patient realizes that he is living under new conditions, with hopes and aspirations he has not known for long months and perhaps for years past.

For the conscientious physician the obscure and unsuspected causes of disease have a peculiar interest, and he will not allow prejudice to prevent a careful investigation of the facts which may reveal such causes.

If this paper shall but stimulate some present to a more earnest study of this subject it will have fulfilled its mission and put into motion a train of thought which must eventually secure to many a now hopeless sufferer a relief so great as to be almost the beginning of a new life.

### Discussion.

When our President asked me to take part in **R. C. Brewster, D.D.S.** this discussion, and told me that I would be allowed ten minutes, I determined I could cover more of the enormous ground involved, and in a more connected manner, if I should read what I had to say.

### History.

About the year 1826 M. Traveau of Paris, France, advocated the use of what he called "Silver Paste" for permanent fillings in teeth. This metallic preparation was first brought to the notice of the dental profession in the United States about seventy years ago through the advertisements of two Frenchmen by the name of Crawcour.

It was called by them the "Royal Mineral Succedaneum;" succedaneum, a replacer or substitute, a name which is indicative of fraud and which consequently stamps the adventurers as unworthy of professional respect.

It was soon proven that instead of being a mineral compound it was purely metallic, and consisted of silver and copper rendered temporarily plastic by the addition of mercury. It was easily manipulated, and they were enabled to fill a class of largely decayed teeth with frail and broken cavity walls such as had never been attempted by the most skilful surgeons.

Scientific investigation at last was imperative, and, as a result, the foremost men who had been arrayed against it now became its ardent supporters. Professor Elisha Townsend, one of the best gold-workers of his day, and president of the American Society of Dental Surgeons, found that the cry of mercurial ptialism was not supported by fact.

This investigation gave birth to an organization called "The New De-

parture Corps," and was composed of the following gentlemen: Professors Henry Morton and M. B. Snyder, scientists; Messrs. Jacob B. Eckfeldt and Patterson Dubois, assayers of the Philadelphia Mint, metallurgists; Drs. S. B. Palmer, Henry S. Chase, and J. Foster Flagg, dentists. The work of this organization gave to our profession what is known as the new-departure creed, the most important deduction of their work being expressed in the following statement: "In proportion as teeth need saving, gold is the worst material to use."

These gentlemen did much to improve the formula for amalgam alloys and it has gone through successive changes until now we recognize the following to be as good in all respects as we can get: Silver, from 60 to 70; tin, from 30 to 35; and gold and zinc from 5 to 10. These are about the proportions. These metals are melted in a crucible and thoroughly stirred while in a molten condition, and then poured into a mold. After the mass has become cold it is cut into filings with a file and we then have the alloy.

To make an amalgam for filling a cavity the required amount of alloy is placed in one side of a pair of weighing scales, and an amount of mercury in the other sufficient to balance the scales. Both the alloy and mercury are now put into a mortar and very thoroughly mixed, after which all possible mercury is squeezed out through chamois with heavy pliers, and the amalgam is now ready for insertion into a *properly prepared cavity*.

An ordinary sized cavity will require 5 grains of alloy. After adding 5 grains of mercury and thoroughly mixing,  $1\frac{1}{2}$  grains of mercury can be expressed through the chamois, leaving  $3\frac{1}{2}$  grains of mercury in a filling of  $8\frac{1}{2}$  grains. This is in a cavity with entire walls. In cavities where contour fillings are required the amount of mercury will be slightly increased.

The object of putting an excess of mercury in the mixing, and then expressing the surplus, is to facilitate a complete and thorough amalgamation, while expressing of the surplus removes only the mercury, no portion of the other metals passing through the chamois.

Such a filling placed in a *properly prepared cavity* makes what all dentists recognize as a good filling, and from which no mercury can be removed so long as it remains in the mouth. This, I believe to be the consensus of opinion of all scientific practitioners of dentistry throughout the world.

It is claimed, however, that the mercury *does* get out and is absorbed into the system, producing mercurial neurosis, ptyalism, etc.

If any of the mercury could be removed from such a filling it would no longer be a fit stopping for a tooth. It would be disintegrated, soft,

and would fall out, either by mastication or the toothbrush. We do not however, find amalgam fillings acted upon in this way. Fillings that have done good service for thirty years are always as hard as the day they were inserted. The mercury *can* be removed by heat and by chemical affinity, neither of which can be produced so long as they remain in the mouth. The boiling-point will not eliminate it, and as the tissues of the mouth will not tolerate anything approaching that temperature, heat is excluded.

I am reminded here of a letter recently received from Dr. Bogue, in which he says, in reply to my question about the action of iodids on amalgam: "I did not make any experiments at all relative to the systemic effects of iodine upon mercury which had entered the system from amalgam fillings in the teeth—perhaps because most of the patients for whom I had the honor of operating have not during my time been subjected to a dull red heat, which is about the temperature required to produce either of the two poisonous salts of mercury."

Messrs. Woodman and Tidy, in their work on "Forensic Medicine and Toxicology," make the statement that the following medicines have sometimes produced salivation: Bromin, arsenic, prussic acid, nux vomica, cantharides, digitalis, conium, opium, and particularly iodid of potassium; and in the face of all this the mercury in amalgam fillings is made to bear so great a burden.

Professor A. Winter Blythe, in his work says, in speaking of amalgam, that the mercury is in *too powerful a state of combination* to be attacked by the fluids of the mouth.

That serious consequences will sometimes follow the insertion of any filling material placed in the cavity of a tooth, I will admit, but such results are not due to the *nature* of the *filling material*, but to the *condition* of the tooth at the time of filling. The first of these are caused by the pressure of the fillings on an exposed pulp; the second is where a filling is inserted over a devitalized pulp; and the third is where the pulp has been removed and the canals not properly sterilized.

The results from this method of fillings are facial neuralgia, shock from thermal changes, pain on percussion, pericementitis, alveolar abscess and great cellulitis, elevated temperature, fetid breath, and excessive flow of saliva, with corresponding constitutional depression. When amalgam had been used in a filling of this kind, all these conditions were said to be caused by the mercury in the amalgam, but *anything* that will hermetically seal a cavity containing septic material, will, on true surgical principles, elevate the temperature, the same as an abscess without a drainage-tube or any cavity in any part of the body containing septic material with no outlet.

The question that is constantly asked of me is, "How great a loss of mercury is sustained by an old amalgam filling?"

This is most thoroughly exemplified by a wonderful series of scientific experiments, in a masterly work on that subject, and as the author of that book is in the room he will explain it far better than I can.

In a letter recently received from Dr. Jarvie he says, "I have practised dentistry for thirty-five years, and have yet to see the first case where injurious results have attended the *intelligent use* of amalgam."

Far greater than any series of scientific experiments can possibly be, is the fact that tons and tons of amalgam are used every year, and no injury has ever been proven to be caused by it.

In J. Foster Flagg's work on "Plastics and Plastic Filling," in looking for some scientific experiments, he says:

"I found reference made to the practical experiments of Messrs. John and Charles Tomes, in 1861 to 1872, which I had regarded as conclusive and had accepted as such. I found the term 'oxidization' as almost invariably applied to the discolorization of amalgam fillings, corrected by the acceptance of the long before urged, and much more reasonable hypothesis of 'sulphureting.' I found a long list of elaborate experimentation with filled teeth and amalgam pellets, weighed with marvelous accuracy, placed in little bottles containing saliva acidulated with nitric, acetic, citric, or hydrochloric acid, and kept in a water-bath inside another water-bath at a uniform temperature—blood heat—for a period of three months, in order to prove by analysis of the saliva whether or not amalgam fillings would be capable of producing mercurial ptyalism. I could not reasonably doubt the certificate of the Professor of Analytical and Applied Chemistry that the saliva contained no mercury in solution."

In speaking of the systemic effects, the author quotes from a discussion held in the Pennsylvania Association of Dental Surgeons, as follows:

"Dr. C. N. Pierce, one of the professors of the Dental College of Pennsylvania, who opened the discussion, said in regard to amalgam ptyalism, that it was a thing of 'so rare occurrence that he believed the profession had never heard of but one practitioner who *thought* that that result was produced by amalgam.'"

Professor T. L. Buckingham said, "he had never seen a case of salivation and had doubts about its ever having produced ptyalism;" that MERCURIAL EFFECTS were "influences produced through the general system, and he did not think amalgam fillings would produce these effects."

Dr. J. H. McQuillen said that "in an experience of fourteen years he could not recall a single instance of necrosis of the jaws, ptyalism, etc., of which others assert they have seen so many;" and that while he recognized

the fact of idiosyncrasies in which the smallest quantity of certain medicinal agencies is followed by untoward results, and would not, therefore, offer his negative testimony as positive proof, yet "his own experience had made him look upon those who assert that they have seen so many cases with considerable doubt as to the value of their judgment or opinions as reliable diagnosticians."

Dr. C. P. Fitch said, "in regard to its toxical or injurious effects upon the system, he was inclined to question, if not wholly doubt, any such influence, and concurred in the views advanced by Dr. McQuillen, that he had yet to see the first case of alveolar abscess, pytalism, etc., due to the presence of mercury in the amalgam."

Dr. J. M. McGrath testified for himself and for his father, who had had an amalgam experience of ten or fifteen years, that as yet "they had never seen any bad effects resulting, such as had been ascribed to its use by many practitioners."

Dr. Flagg says: "Thus it was that I was fortified by the combined testimony of gentlemen whom I could esteem as conscientious observers, and for whom I had much regard, both socially and professionally. It now remained for me to add the testimony of almost thirty years more of increasingly acute scrutiny (this book was written ten years ago), with the assertion that during all of my amalgam experience *I have never seen one case of mercurial pytalism, mercurial periostitis, mercurial necrosis, or of the slightest symptom which could reasonably be ascribed to mercurial action.* I have had cases of asserted mercurialization brought to me by the score. I have treated them experimentally with chlorate of potassium to demonstrate its utter impotency, and have then *cured every case* without the use of any anti-mercurials and have left the teeth refilled with amalgam. If anything more convincing than this is required, I have it not to offer."

**The President.** I have before me a very elaborate series of experiments on "The Physical Properties and Physical Actions of Dental Amalgam," by E. A. Bogue, M.D., D.D.S., of New York, now known as Manhattan. If Dr. Bogue is present we should be very glad to hear from him.

**Dr. Bogue.** In the first place, the dentine of the tooth has a circulation like a vegetable, and only that; the cementum of the tooth has a circulation like bone; the enamel, I need scarcely say, is akin to crystal. It is plainly stated in "Wood's Therapeutics" that minute doses of mercury increase the weight and increase the number of red blood corpuscles. So far, therefore, from being detrimental, it would seem that a thirty-eight-years' wearing of

amalgam fillings ought to have helped him. Perhaps it is that that enabled him to work eighteen hours a day! I do not see that such a supposition on my part would not be quite as susceptible of proof as the assumptions on Dr. Tuthill's part that these neuroses of which he speaks arose from amalgam fillings.

Then as to the power of mercury from amalgam to penetrate into the system. In the first place, the amalgam filling should be a chemical combination. It should not be a mere loose mechanical mixture. If it be a chemical combination, it is impossible to separate the mercury from the mass short of a heat very nearly approaching redness, excepting it be a dry heat. I did go through a series of experiments, which I have looked over tonight for the first time in twenty years, and I am ashamed of their elementary character, but at that time—in 1873—we knew very little of amalgam fillings. It so happened that two gentlemen then connected with Harvard University, and a third connected with the University of New Orleans, had written certain papers which were read and discussed. In the course of my experimentation I kept a whole handful of amalgam fillings at 100° F. for three months, in saliva, for the purpose of making not only the test as to whether it were possible for mercury to be injurious systemically, but also for the purpose of finding out what the effects of certain chemicals were upon the teeth in connection with amalgam fillings. Perhaps, if I might be allowed, I will tell the reason that caused me to commence these experiments. A gentleman of great prominence in the now Greater New York placed his son in my hands for treatment and for a curious reason, as I supposed, declined to pay my bill. He sent him to some one else to have the amalgam fillings which I had put in taken out. This is history. It so happened I had not put any in. He then sent a letter from Dr. Metcalf, Professor of Theory and Practice at the College of Physicians and Surgeons, New York, to me, with the statement that the probability was that his son was suffering from mercurialism from the presence of amalgam fillings. That boy had but one amalgam filling in his mouth, which had been there a number of years—a tiny thing, about as large as a pin's head. I replied to Dr. Metcalf that the boy was not suffering from mercurialization, but from chronic dyspepsia due to his inability to masticate properly—rather a saucy thing to say to a Professor of Theory and Practice. Dr. Metcalf took it kindly, however, and in a letter inquired of me whether it would not be possible for the emanations from amalgam fillings to produce systemic results. Thinking the question easy to answer I laid it by to the next day, and the next week, and in fact it was unanswered for twelve months, all of which time it took me, besides four or five hundred dollars in cash, before I was able to satisfy myself

with an answer to that question. Then came the analysis made by Professor Chandler of Columbia College, in which, as has been stated, he certifies that there was no mercury to be found in any of the bottles of saliva, which for three months had been kept at 100° F. and contained, as I said before, a handful of amalgam such as dentists use. That report was made just after a little extract from the "Chicago Medical Journal" for July, 1873, had been put in my hands, in which was an article by Dr. Paine, in which he speaks of "the poisoning of thousands of people all over the world from corrosive sublimate generated in the mouth from amalgam plugs in the teeth; neither cholera, smallpox, or any malarious disease doing more injury in the world than this poison." That is broader and stronger than any statement that has been made this evening, and it was in answer to that and to Dr. Metcalf's very kindly question that these experiments were undertaken. I would only add that it is quite possible to eliminate mercury from amalgam fillings when they are dry, but when they are under saliva, or under water, it has not been found so in three-months' time.

I have been in practice for a number of years  
**Dr. E. H. Babcock.** and have been looking for these cases of salivation. I saw last October a case that I thought was a typical one, but every filling in his mouth was gold. I saw another case only last month, and that man did not have a single filling in his mouth; so I hardly think that can be charged to the amalgam. The statement was made that amalgam fillings when removed are found to be bright on the side which comes in contact with the walls of the cavity. I think you will find they are as perfectly oxidized there, or "sulphuretted," as they are on the outside.

Mr. President, either mercury produces, when  
**Dr. H. C. Brush.** absorbed from the teeth, an entirely different clinical picture than when absorbed from the other parts of the system, or there is a discrepancy in Dr. Tuthill's cases. As he read them off they reminded me more of miscellaneous cases of neurasthenia and hysteria than anything else, and the rapidity with which they changed their character from time to time; the variability of the symptoms and the extreme rapidity with which they got well, even after existing for years. A mercurial poison which has existed for years almost invariably produces a continuous tremor, due to the deposit in the nervous system and accompanying sclerosis. Had these cases lasted for so many years there would have been the production of some organic change there and the condition would not have cleared up so quickly. I think the last speaker is quite correct regarding the element of mind-cure. I think that was the potent element which produced the cure in those cases.



We all admit that there is a circulation in the teeth which may be the means of carrying the poison through the system, and this kept up for weeks, months, years, and decades, the system will feel the effect of this poison. I tell you, gentlemen, no one knows the direful consequences if he has not been there himself. Of course I am more interested in this subject, for it came near costing me my life.

I have often thought how the fathers in dentistry wrought well when they fought to the bitter end this subject of amalgam fillings; how they wrestled on the one side to prove it harmless, and on the other to expose its treachery and condemn its use. The struggle lasted from 1841 to 1847, when in the New York Dental Society all who had not pledged themselves not to use amalgam were obliged to resign or were expelled. Those who had been the best of friends became bitter enemies. I hope that the same conscientious feeling which prevailed then will prevail again.

I would like to say a word on that point. I think at present there is hardly a dentist in practice in the entire world but habitually uses amalgam; they have all overcome their prejudice to it. There is no more danger of that fight being renewed than of any other absurd thing.

I do not claim for this particular effect of mercury that you get salivation. There is no ptialism present; I never saw it in one case, but, as I said in my paper, there is a peculiar action upon the nervous system. The theory that recovery was due to mind-cure is too absurd for consideration in connection with the cases I have cited. I have seen people who would get well on that theory, but I am sure that does not hold in these cases.

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## Pulp Mummification.

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By THEODORE SODERBERG, Dentist, Sydney, Australia.

(From *The Dental Cosmos*.\*)

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In the *Dental Cosmos* for May, 1893, Dr. W. E. Christensen communicated some comments on the Witzel and Herbst methods of treating devitalized pulps, and pointed out that the real effect aimed at by the two German dentists was the mummification of the pulps left untouched in root canals.

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\* Since publishing an article by Dr. Waas in which he referred to this paper by Dr. Soderberg we have been inundated with requests for information contained therein. Our correspondents have been referred to the publishers of the *Cosmos* with the result that the particular number of the *Cosmos* has been exhausted. As we are still receiving requests for the article, it is now reprinted to satisfy the demand. — EDITOR.

Previous to reading about "this treatment, which we may call simple, and at the same time scientific," I had followed the usually thought and practiced method of treating devitalized pulps, viz., to give my patients just the amount of strain and pain equivalent to the amount of my own bulldog perseverance with that exquisite instrument of torture—the nerve broach; then *trying* to fill the canals with gutta-percha or asbestos fibers saturated with some antiseptic; and then—well, the final result was not always my patient's comfort any more than my own glory.

I discarded the old method and adopted Dr. Witzel's, commencing by using the following modified formula (his paste, as formulated by Dr. Christensen, being too thin to be workable):

Hydrag. bichor. corr., gr. xxx;	Ol. menth. pip., gtt. j;
Morph. muriat., gr. xv;	Ol. caryophyl., gtt. j;
Ac. phenyl., gr. x;	Alum. exsicc., q. s., to make stiff paste.

This paste had, however, the drawback which all pastes containing mercury have—it caused discoloration of the tooth, at least when used in connection with steel instruments and amalgam.

Shortly afterward (September, 1893), the *Dental Cosmos* brought out Dr. W. D. Miller's valuable contribution, "Concerning Various Methods Advocated for Obviating the Necessity of Extracting Devitalized Tooth-Pulps," and I at once commenced to experiment with different pastes to find one which would cause mummification of the pulp without discoloration of the tooth.

The properties of an ideal mummification paste can be shortly described thus:

1—It must contain an antiseptic sufficiently strong to prevent decomposition taking place while mummification sets in. Once mummified, the pulp is (so at least, I believe) not very likely to become decomposed and putrid.

2—It must contain an ingredient which will, as quickly as possible, cause mummification (drying, shriveling) of the pulp tissues.

3—It must contain a substance which, in conjunction with the other ingredients, will impart a white color to the mummified pulp, and prevent discoloration of the tooth.

4—It must contain an agent capable of binding the whole compound together in a pasty state, and making it penetrate deeply and quickly.

Dr. Miller enumerates yet other points; but the above are, I believe, sufficient for all practical purposes.

Besides Dr. Witzel's paste, as given above, I have experimented with three of Dr. Miller's formulae, using glycerol as the binding agent, viz:

Sublimate	{	equal parts;	Sublimate	{	Thymol, q. s.
Thymol			Thymol		equal parts; Ol. cassia,
			Tannin		
Glycerol, q. s.			Glycerol, q. s.		

Here, again, the disadvantage is—as pointed out by Dr. Miller—the discoloration of the tooth, bluish-black by the mercury, yellowish-brown by the oil of cassia. My test tubes further show that where tannin is used in connection with either of these, or any other paste—especially if glycerol be used as a binding agent—the discoloration is more marked.

Experiments with twelve other pastes, first in test tubes, next with freshly extracted teeth, proved to my preliminary satisfaction that the following formula was the most reliable on the four points above enumerated:

Dried alum, 3 i;	Thymol, 3 i;
Glycerol, 3 i;	Zinc oxide, q. s. to make stiff paste.

In this paste the thymol acts as the antiseptic, the alum as the mummifying agent, the zinc oxide as the coloring medium, and the glycerol as the binding and penetrating agent.

Bearing in mind Dr. Miller's favorable recommendation of thymol, I adopted it as my antiseptic, and I fancy that I shall not have cause to regret my choice. My reason for adopting dried alum was that its tanning properties are far superior to those of tannin or any other tanning agent—a statement which any practical tanner will indorse.\* Further, dried alum does not discolor the paste, while tannic acid, if substituted for the alum in the above mixture, produces a dark-brown paste.

I need hardly point out that glycerol, with its great affinity for moisture and its well-known penetrative power, is an excellent carrying agent for all mummifying pastes; further, that no better coloring medium can be found for the purpose in view than zinc oxide.

The entire paste is, finally, non-irritating; I have, in fact, continually used it for other purposes, e. g., in deep cavities between pulp and filling material, etc.

I have used this particular paste for over twelve months, and, *so far*, not one single case out of a total of ninety-seven has given any after trouble (alveolar abscess). And here I may be allowed to state that neither have I, so far, had any after trouble with any of the cases treated with Mr. Witzel's paste (from August, 1893, to date). I am perfectly well aware that neither one year, nor two, is sufficient time to warrant

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\*I have it on the authority of the senior partner of the largest tanning establishment in Sydney (Ludowici & Sons), that an ox-hide can be tanned with dry alum in less than one-tenth the time that any other substance consumes in the process.

a guarantee of absolute success, and I acknowledge the truth of Dr. Miller's words, "Granted that the pulp becomes sterilized by the operation, this does not say that it remains sterile indefinitely."

I must here point out that my claims as a bacteriologist are *nil*, and as far as experimental chemistry is concerned, my knowledge is only that of the average educated dentist. I am unable to make experiments with mummified pulps on infected agar culture, and I am unable to give the "higher scientific reasons" why and how the paste acts as it does. All I know is that it *does* act mummifyingly on the dead pulp, and that twelve months after that mummy is still a mummy, and not a soft, stinking horror.

My patients mostly belong to the so-called middle and working classes. For divers reasons, they are not as careful with their teeth as are the members of the more cultured and moneyed classes; they don't as a rule, think of visiting the dentist except when an exposed pulp acts as a vivid reminder. In short, my practice is such a one that I have to resort to my devitalizing paste very frequently. Hence excellent opportunities to see and observe the effect of the mummification paste. (And hence, also, the "kind o' sickly smile" wherewith I point out to my pupils Dr. Miller's angelic advice: "One or two cases every month—at least for the first year or two—is all that a careful dentist ought to risk in private practice." It is, however, a great consolation to me to read in the same article that over two hundred cases were treated with Dr. Miller's paste at the Dental Institute of the University of Berlin, with only one failure on record). I have tested the action of the mummification in the way that conforms best with my bent of mind and my inferior standard of scientific education: I have removed test fillings three, six, nine and twelve months after the pulp treatment took place. In all cases the same satisfactory result observed—mummification of the pulp. One case I especially wish to record. I had occasion to extract an upper third molar treated seventeen days previously. On immediately splitting the tooth, I found the pulp in the root canals perfectly mummified down to the very foramina. Whether the experiments are carried out with the teeth *in situ*, or with extracted teeth, the mummified pulps always present the same appearance, viz.; a perfectly dry, parchment-like mass, with a faint odor of thymol, and a whitish color.

My mode of procedure is as follows: After the pulp has been perfectly devitalized (arsenic, cocaine, alum, equal parts, glycerol, q. s., sealing with sticky wax), I open up the main pulp chamber and drill out its dead contents, leaving the root canals untouched. I then fill the chamber with paste, and with a flexible Donaldson bristle gently prick the paste into the pulps left in the canals (this, however, not absolutely necessary). I now seal with cement and insert amalgam or gold, as the case may be. I use rubber dam or cup where possible, otherwise Sperling's rolls—the main thing to keep out the saliva, at least until the first piece of amalgam has been inserted and burnished round.



**A Dictionary of Dental Science**  
**And Such Words and Phrases of the Collateral Sciences as Pertain to Art**  
**and Practice of Dentistry.**

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By CHAPIN A. HARRIS, M.D., D.D.S.

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Sixth Edition, Carefully Revised and Enlarged by FERDINAND J. S. GORGAS, M.D., D.D.S., Author of "Dental Medicine"; Editor of Harris's "Principles and Practice of Dentistry"; Professor of Principles of Dental Science, Oral Surgery and Prosthetic Dentistry in the University of Maryland.

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Philadelphia, P. BLAKISTON, SON & Co., 1898.

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Nothing is more important to both student and practitioner than a reliable, scientific, up-to-date dictionary. The different editions of Harris's dictionary of Dental Science are part of the history of the profession.

In the sixth edition, Prof. Gorgas has given to us the result of the last seven years of work. The book is greatly enlarged by the addition of thousands of words for which purpose he has delved freely into the allied sciences wherever their services are brought into use by the dentist. The only criticism that can be made of this work is that Prof. Gorgas has not kept within the bounds of a dictionary, simply a description of words and phrases, but strays freely into the paths that belong to works on practice and therapeutics in describing treatment and remedies. In the condensed form in which this must be done in a work of this character, it may easily be productive of more harm than good.

## **Anatomy and Histology of the Mouth and Teeth.**

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By I. NORMAN BROOMELL, D.D.S., Professor of Dental Anatomy, Dental Histology and Prosthetic Technics in the Philadelphia College of Dental Surgery, Philadelphia.

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With Two Hundred and Eighty-four Illustrations.

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P. BLAKISTON, SON & Co., Philadelphia, 1898.

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Nothing in the history of dental science has so proven its ability to keep astride of its allied branches of the healing art as the class of books published in the interest of dental education during the past five years.

The text book on "Anatomy and Histology of the Mouth and Teeth," by Prof. Broomell is one of the latest additions to our list of text books and easily holds its own at the head of the list. The time has come when the progressive practitioner feels that everything within the mouth itself should be best taken care of by the dentist. It is to this feeling of scientific work that the book especially appeals.

The work is divided into two parts; the first treating of the Anatomy and the second of the Histology of the mouth. Whilst the author with great modesty has denied any originality as to the "earlier chapters," he is entitled to the greatest praise for his concise classification and the remarkable clearness and terseness of description. After a careful perusal, it seems well-nigh impossible to find any unnecessary words.

The value of the book is greatly enhanced by the magnificent illustrations which eclipse anything that has yet appeared in a work of this character. Not only have the publishers produced a work of art in this respect, but when it is understood that with a few exceptions the 284 illustrations are magnificent reproductions of original photographs by the author, a faint idea of the real value of the work is obtained. These photographs are taken direct from the subject, requiring many dissections on the part of the author. This lends an air of practical reality to the work that has left it utterly free from the dryness and difficulty of mental digestion, which has heretofore been inseparable from an anatomical treatise and the bugaboo of the student. Such text books must make better dentists. How much this book will lighten the difficult load of the college authorities, only the teacher will be able to answer. The original character of the work is most forcibly shown in the chapter on

"Development of the Teeth," from pages 281-323, and this alone renders the work invaluable.

The manner of describing, by photographic illustrations, the classification of each tooth in detail as shown in chapters VIII and IX, are revelations in the art of progressive dental instruction.

The second part of the work devoted to Histology is written in the same terse style of description as Part I. In this section Prof. Broomell very wisely presents not merely his own individual work, but the latest and best specimens of our highest authorities on the subject. He is a strong believer in the value of the low magnifying power for instruction purposes as he very seldom resorts to the higher power of magnification.

Whilst it is always possible to find some minor defects and omissions in a work of this character, for a new book it is remarkably free from error. No doubt, in a future edition, the author will find much of value to amend and to add. In this respect the lack of anything on abnormalities in the microscopic description of the tooth is most noticeable. These variations from the normal are so extensive that a large field for future work still lies before the author before he adds this important chapter to his work.

M. L. R.

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## **Orthodontia; or, Malposition of the Human Teeth.**

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### **Its Prevention and Remedy.**

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By S. H. GUILFORD, A.M., D.D.S., Ph.D. Professor of Operative and Prosthetic Dentistry and Dean of the Philadelphia Dental College. Author of "Nitrous Oxide," etc.

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Third Edition, Revised and Enlarged.

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T. C. DAVIS & SONS. Philadelphia, 1898.

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This little volume by Dr. Guilford is an improvement upon the second edition, which was a valuable contribution to the literature on the subject.

In the third edition, the most noticeable chapter is the one entitled "Dynamics of Tooth Movement." The author's description of secure anchorage is the most comprehensive and the best which we have seen in print.

Later in the same chapter, under the title of "Proper Application of Force," Prof. Guilford adopts and defends the theories of Dr. C. S. Case. He offers some ingenious diagrams in substantiation of his argument, notably Fig. 20, which, however, is faulty from the fact that the fulcrum is misplaced.

Dr. Guilford, in this argument, assumes that in moving a tooth towards the palate, the fulcrum would be at the cervical margin. If this were true, all of his arguments would be sound and his deductions logical, but it is not true. The fulcrum is supposed to be a fixed point, or at least the point of greatest resistance, whereas it is a well known fact in practice that, in moving a tooth in this direction, the tissues about the cervix yield so rapidly that the soft tissues do not have time to absorb, being therefore pressed down often to such an extent that it becomes necessary to remove them by incision.

In the preface to the work, the author tells us that much material contained in former editions which had ceased to be of value, have been excluded from the present edition. It seems a pity that he did not include in this category, the time worn illustration of Dr. Allen's chin piece for retracting the lower jaw.

This case has burdened our literature long enough, leading many to believe that by similar method, results reported by Dr. Allen can be repeated, whereas no one else has ever succeeded in accomplishing it.

Following this is a picture of a chin piece by Dr. Kingsley, and its appearance here would lead one to imagine that Dr. Kingsley had made a success with it, whereas its use was not for retraction, but in the hope of obtaining additional pressure from the lower jaw upon teeth in the upper which needed shortening.

An interesting case somewhat similar to the Allen case is recorded, wherein we are told that Dr. Winner, of Wilmington, Del., succeeded in retracting a lower jaw, but this was merely accomplished by the use of inclined planes, which would seem to indicate that there was some opportunity of moving the jaw back bodily, because of the free articulation, whereas the intent of a chin piece is to reduce the length of the lower jaw by bending the ramus.

Throughout the book a great many exceedingly ingenious appliances are figured, and while the author has borrowed liberally from other writers, giving all full credit for their work, some of the more ingenious appliances are of his own devising. The few defects to which attention has been called, are of minor importance in comparison to the exceeding practicability of the great number of appliances illustrated and recommended. The work should be in the hands of all who venture to practice



orthodontia, as, in many instances, suitable appliances for a case in hand would be found described, saving much study in the originating of new fixtures.

The work is printed and bound in excellent style.

R. O.

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## **L'Art Dentaire en Medecine Legale.**

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Par Le DR. OSCAR AMOEDO, Professeur a l'Ecole Odontotechnique de Paris.

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Paris, MASSON ET CIE, Editeurs, Libraires de l'Academie de Medecine, 1898.

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This work is one of the most valuable, and certainly the most unique contribution yet made to the literature of the dental profession. In a volume of over six hundred pages, the author has covered his subject most admirably, and, in fact, in a manner so commendable, that it is doubtful that it will ever be surpassed. Those who have written original works, appreciate the labor of such an undertaking, but when the subject is one which entails the constant reference to the works of others, the labor is increased incredibly. Some idea of what Dr. Amoedo has done may be had, when it is stated that the list of works to which he has referred, covers thirty-five pages.

Perhaps the most interesting feature of this volume is to be found in the chapter entitled "Observations," which includes a record of cases where the bodies of the dead have been identified through the operations upon their teeth. At this time when dismembered and charred bodies are being taken from the ruins of the Windsor Hotel, one of which at least, it is hoped, may be identified by the teeth, the account which Dr. Oscar Amoedo gives us of similar procedures in connection with the destruction of the "Charity Bazar," at Paris, in May, 1897, is exceedingly interesting.

He tells us that after the fire, M. Albert Haus, consul for Paraguay, made the suggestion that dentists be called to assist in the work of identification. This was an instance where the persons missing were known, although the bodies could not, apparently, be identified; thus it was only necessary to call the dentists of the missing individuals, and have these gentlemen make examinations of the teeth of the charred bodies comparing the same, with their records, in order to determine finally whether or not positive identification could be made.

As an example of the methods of procedure, the following extract is translated from the work, being selected because the *confreres* of Dr. Davenport (an American dentist), would be interested to know that he was one of those assisting in the sad labor.

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Dear Dr. Amoedo:—Inclosed I send you a few lines concerning the identification of the corpse of the Duchess d'Alencon, as you desired:

Later on I shall publish the complete dental chart, made use of in the identification, together with other observations and considerations, but not before having obtained the approval of his Royal Highness the Duke d'Alencon, and naturally I cannot furnish you these from motives of delicacy which you will understand and appreciate.

I hope nevertheless that that which I send you may be useful for the preparation of your medical thesis. It is at least a correct account of the facts as they have occurred. Nearly all the reports of the papers were incorrect and incomplete, and often even slanderous. The one with the title "History of the Catastrophe of the Bazar de la Charite" was very incorrect.

The report of the *Gazette de France* was correct, those of the *Petit Journal*, *l'Echo de Paris*, and *le Temps* were nearly correct, but all the others were false.

My best wishes for the success of your work. I hope it will be recognized as classical in the medico-legal and dental sciences.

(Signed)

I. B. DAVENPORT.

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## Identification of the Duchess d'Alencon after the Conflagration of the Bazar de la Charite.

By DR. ISAAC B. DAVENPORT.

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Between eleven o'clock and noon, on May 5, 1897, after the burning of the Charity Bazar, I was called to the Palais de l'Industrie to assist in the identification of the body of her Royal Highness the Duchess d'Alencon.

M. Albert Haus, consul for Paraguay, had suggested the idea to send for the dentist of the Duchess; the Duke de Vendome therefore transmitted the request through Baron Tristan-Lambert. He asked me whether I could recognize the body, and I answered, "Yes, if the teeth have not been destroyed."

I am in the habit of marking on a chart, for each patient, at the time of the first consultation, the most important particularities of the mouth and dental organs.

I make note especially of the loss or the absence of teeth and change in position of the teeth affected by such losses. The presence of roots, abscesses, dead teeth, when the examination is made is noted as well as crowns, bridges and plates.

Each cavity found is indicated in pencil and ink.

The form of each filling is marked in ink upon the original point of the examination, and a number placed opposite, which refers to a complete account registered on the back of said chart. In the same way the materials employed, method of treatment, everything is copied in a register as a permanent memorandum, and I preserve the original chart.

In the case of the Duchess, I had filled two charts of the state of the teeth and the operations practiced in seventeen consultations, which comprise a period of more than two years, the last operations having been performed the 15th of December, 1896, less than six months before the accident.

With these notes, I accompanied Baron Lambert to the Palais de l'Industrie and with these I was able to prove:

First, the non-identity of a corpse which was believed to be that of the Duchess.

Second, I found among the thirty or forty corpses frightfully burned, one corpse which I identified and I proved that it was that of the Duchess.

The first corpse examined was rejected on account of the existence of certain teeth which had been absent with the Duchess. On the other hand, I recognized that certain teeth, which had been lost for a long time in the mouth of the first corpse existed as I knew in the mouth of the Duchess, and above all this, there was nothing in this mouth that corresponded to the record of the operations made by me.

My *proces-verbal* was then made in writing, in which I described the state of the Duchess's teeth. I noted the principal points of difference there were between her teeth and those of the corpse submitted at the examination.

Baron Tristan-Lambert then requested me to kindly view the corpses, which I did, accompanied by the Commissary of Police, M. Pelardy.

After having examined thirty or forty mouths, I found one (almost the last) in which I recognized, even with quite a bad light, my own work.

This corpse was found charred and all ordinary identification was

impossible; nevertheless, the head and trunk were intact, although the legs and right arm were missing.

At my request, the corpse was carried to daylight, and assisted by Dr. Vibert (medico-legal expert), I was able to verify in all its peculiarities all the details of my chart.

My *proces-verbal* was then registered, in which I repeated my first description of the teeth of the Duchess. I showed the exact conformity of my notes with the conditions found in the mouth of the corpse examined last."

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The book is printed on fine paper, and the letter press is excellent.

The volume is bound in pliable leather, making it very agreeable to handle.

It would not be a bad idea for one of our American publishers to issue an English translation, which would certainly meet with an extended sale, as there is nothing of the kind in our language.

Dr. Amoedo deserves the thanks of the profession for the great labor expended on his work, and for his magnificent result. R. O.

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### **Merck's 1899 Manual of the Materia Medica.**

Together with a Summary of Therapeutic Indications and a Classification of Medicaments. A Ready-Reference Pocket-Book for the Practicing Physician. Containing Names and Chief Synonyms, Physical Form and Appearance, Solubilities, Percentage Strengths and Physiological Effects.

Therapeutic Uses, Modes of Administration and Application, Regular and Maximum Dosage, Incompatibles, Antidotes, Precautionary Requirements, etc., etc., of the Chemicals and Drugs Usual in Modern Practice.

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Compiled from the Most Recent Authoritative Sources and Published by MERCK & Co., New York. Price, \$1.00.

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Merck's 1899 Manual combines in one small volume an encyclopedia of the current Materia Medica, a Dose Book and an Index of Diseases, Therapeutic Indications and Drug Actions compiled from standard authorities. Although containing but 192 pages, the book embraces all the data on Materia Medica as now in use, that are likely to be of practical value to the physician when prescribing. It is printed with clear type on fine quality Bible paper, bound in flexible keratin, and is not larger or thicker than the commonly used physician's visiting lists or pocket memorandum books. Hence Merck's Manual is calculated to prove a useful book for the busy practitioner on his daily rounds.


Part First—The *Materia Medica*, as in actual use today by American physicians, alphabetically arranged. This part embraces all those Simple Medical Substances (that is, drugs and chemicals) which are in current and well-established use in the medical practice of this country or which, if too recently introduced to be as yet in general use, are vouched for by eminent authorities in medical science; also, all the therapeutically active Pharmaceutical Preparations recognized by the United States Pharmacopoeia.

Part Second—Therapeutic Indications for the use of the *Materia Medica* and other agents; arranged alphabetically under the titles of the various Pathologic Conditions. This part summarizes in brief form the principal means of treatment for each form of disease, as reported to be in good use with practitioners at the present time. The statements hereon are drawn from the standard works of the leading modern writers on Therapeutics, and supplemented—in the case of definite chemicals of more recent introduction—by the reports of reputable clinical investigators.

Part Third—Classifications of Medicaments according to their Physiological Actions; arranged alphabetically under the titles of the Actions. This part recapitulates, for ready survey, such statements as are already given in "Part I," as to the modes of action of the various medicaments.

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## CORRESPONDENCE



### Electro-Deposition of Metals.

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Editor ITEMS OF INTEREST.

DEAR SIR: It seems I was in error in regard to one statement I made in my last article in the *ITEMS OF INTEREST*, and I desire to make a correction of the same.

I asserted that Dr. L. B. Wilson had "never demonstrated his methods before any intelligent body or individual of the profession."

I have since learned that he did give a clinic in 1895 at a joint meeting of the Maryland State and Washington City Dental Associations.

Before I made the above statement, however, I had used every available means at my command to ascertain the status in regard to this point.

I could get no facts upon the subject, so ventured the assertion which I now correct. Whether his clinic at that time was a success or not, I am not prepared to say. If, however, before these associations he simply demonstrated galvano-plastic reproductions in copper, I would *not* consider his clinic a success. Electrotyping or reproductions in copper is quite old, and simple, but equally heavy deposits of gold are practically impossible in contrast with the slight amount of labor or time involved in the former process.

On this fact hinges the controversy between Dr. Wilson and myself, as will be noticed by a reference to my first article upon the subject.

Experiments with reproductions in gold are so intricate, expensive and time consuming in their nature, that they have been rare; in fact, so rare that there is practically no data upon the subject.

If my friend had confined his remarks or claims to operations with solutions of the salts of copper, I would have remained silent, but his claims of identical results with solutions of the salts of the noble metals were so subversive of all precedent, yet so rare in their apparent ingenuousness, that I was compelled to criticise them somewhat severely.

Yours truly,

DAVID AIKEN.

Winnsboro, S. C., March 15, 1899.

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### Pine as a Root Filling.

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Editor ITEMS OF INTEREST.

DEAR SIR: A left superior first molar extracted from my own mouth in April, 1898, has such an interesting history, I herewith send it to you for the benefit of your readers.

This tooth was filed January 16, 1878, by Dr. W. H. Munsell, then of Swanton, now of Well's River, Vermont. A putrescent pulp was removed and root canals filled with a *pine match* whittled to a suitable point and dipped into creosote just before insertion.

A fraction of the palatal root in extracting revealed the wood in perfect state of preservation, and the tooth had done excellent service for over twenty years, and for at least fourteen years had had to bear the principal burden of all my mastication. The right inferior second molar was treated in the same manner the day previous, viz.: January 15, 1878, and was lost during the year 1897, having been pushed out of position by mal-articulation, and for many years useless for mastication, but I never had any periodontal trouble from either tooth.

I still have both the extracted teeth, the last one being extracted by my confrere, Dr. Geo. H. Watson, of this city.

I remember distinctly the circumstances of the filling of these teeth and have received, by the kindness of Dr. Munsell, a copy of his record made at the time, verifying my memory and fixing the absolute date.

How is this for "Vermont pine" with a good Vermont dentist to drive it home? Most fraternally yours,  
GEO. O. WEBSTER.  
Berlin, Germany.

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### Furnace for Gasoline.

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Editor ITEMS OF INTEREST.

DEAR SIR: In your March number, page 221, a correspondent living in Hiawatha, Kan., asks what furnace can be used with gasoline for fusing porcelain.

In reply I wish to state that an appliance, such as advertised on page 29a, connected with a "Land" or "Downie" furnace, will enable him to fuse porcelain, high or low heat, very readily.

For fusing Jenkins' porcelain, Ash & Son's, also Downie's, or any other low fusing porcelain, a furnace is not strictly required. A strong blow-pipe flame on a small air-tight platinum muffle will do the work.

As I have had considerable experience in porcelain work and various appliances, I shall be pleased to give your correspondent further information, if desired. Yours very truly,

W. A. CAPON.

Philadelphia, Pa., March 7, 1899.





## Henry Howard Keith, D.D.S.

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Henry Howard Keith, the only son of Amos B. and Katie M. Keith, was born at Salem, Mass., June 14, 1847. He resided in Boston until the beginning of the Civil War, when the family moved to Chicago. After working a short time in a machine shop to learn the use of tools he was apprenticed to his uncle, Mr. A., of New York, who was a jeweler. In 1864 Dr. Keith went to Philadelphia and entered the laboratory of Dr. Chas. Essig. He made such rapid progress that when Dr. Essig moved his laboratory to Baltimore in 1868 he took Dr. Keith with him, and while there he met the lady who afterwards became his wife. After spending about two years in Baltimore he went to Newark, N. J., where he worked for Drs. DaCamare and Phinney until he was married, in January, 1871. His wife was Miss Nina L. Benteen, of Baltimore.

He came to St. Louis in February, 1871, and in the fall of the same year opened a laboratory. He was successively with Drs. Morrison, Eames, Park, McKellops and Lange. He attended the Missouri Dental College and graduated while with Dr. Park, in 1873, and afterwards held positions in the same college, in 1875-6, as Demonstrator of Mechanical Dentistry, and was Professor of Mechanical Dentistry from 1876 to 1879 inclusive.

Dr. Keith's talents lay in the direction of plate work, in which he had no superior, though he had a large practice in operative work. His heart was in his profession and he spared neither time nor pains when engaged in a difficult piece of work; and the greater the difficulties the more he enjoyed overcoming them—in which he seldom failed. As an operator he was equally skilled and was extremely gentle and considerate of his patients.

His chief characteristic seemed to be a desire to help the younger members of the profession. Every one coming to St. Louis met with a pleasant welcome from him, and he always did what he could to advance them. His knowledge was given freely and heartily, and he was always eager to help or instruct others.



At Lake Minnetonka, in 1888, he contracted the liver trouble that finally caused his death. His summers, for seven years past, have been spent in Asheville, N. C., where he had a beautiful home. He also spent his Christmas and Easter vacations there, as the climate greatly benefited him. He returned to St. Louis in September, 1898, and though in very poor health, he resumed his practice. His health failed very fast, and his death was the result of peritonitis. He died January 26, 1899, and was cremated at the St. Louis Crematory, as he had desired. His ashes will be buried at Riverside Cemetery at Asheville.

As an instructor he was one of the few men who seemed capable of imparting his knowledge so that the one instructed could not fail to grasp the ideas of the master mind. He was a member of a Sketch Club and well versed in photography. For that reason he was an adept in illustrating his subject. His office was a study in itself for neatness, convenience and all that was new in modern dentistry. His laboratory was equal to that of his office. He was considered one of the best continuous gum workers in this country. All his work in this particular line had the finish of a master artist.

He was a man who was continually striving to accomplish something that would advance his profession. He was an active member of both State and City Societies; of the latter he served four years as Recording Secretary, and in 1882 was the President, and no better drawing card could be announced than the mere statement that Dr. Keith would either read a paper or give a talk on some dental subject. As a professional man he was a model. He was never known to speak ill of any professional brother so as to advance himself in the estimation of his patients. His professional liberality was one of his many good traits that should be observed by us all. He was always willing to assist any dentist, both financially and professionally, and nothing would give him greater pleasure than to impart his practical knowledge to any brother needing his advice. He was a frequent contributor to the dental journals.

JOHN G. HARPER,  
WALTER M. BARTLETT,  
JOS. G. PFAFF,  
Committee.  
St. Louis Dental Society.

**Dr. L. S. Skiff.**

Dr. Lansing S. Skiff, of Salem, Oregon, died at his home March 8, 1899, after a brief illness of two weeks. He was in his seventy-seventh year, and was one of Salem's pioneer residents.

Dr. Skiff contracted a cold which developed into la grippe, accompanied by pneumonia, but was deemed convalescent in a week's time and gave every indication of a recovery, but he suffered a relapse, which terminated in his demise; the immediate cause of his death, however, being heart failure, incident to pneumonia.

Dr. Skiff was born in Syracuse, Onondaga County, N. Y., March 12, 1822, and his ancestry is numbered among the Puritan settlers of New England. He was educated in the district schools of his day, and studied dentistry in his native town.

In the excitement resulting from the discovery of gold in California he left for the new "Eldorado," sailing around Cape Horn. He arrived in San Francisco, September 17, 1849. For several years he engaged in mining and storekeeping. In 1857 he resumed the practice of dentistry in California and Washington, in the latter State having an office at Olympia. In July, 1858, he opened a dentist's office in Salem, where he had since resided. He was married May 1, 1859, and leaves a wife and six children.

The deceased was one of the most skilful and successful dental practitioners on the coast, and enjoyed a large and lucrative practice. He was the founder of the Oregon State Dental Society, and served one year as president and two years as vice-president of that organization. He retired from the practice of dentistry in the summer of 1895, his sons, Mark S. and W. F., who had for many years been associated with him, taking charge of his office.

Dr. Skiff was considered one of the substantial citizens of Salem, and was elected no less than five times to represent his ward in the Common Council. He was one of the most active men in that community in all enterprises looking to the advancement of the material welfare of the city and county in which he resided.



### **New Jersey State Dental Society.**

The twenty-ninth annual session of the New Jersey State Dental Society will be held at the Auditorium, in Asbury Park, commencing at 10 o'clock a. m., Wednesday, July 19th, and continuing the 20th and 21st. Members of the profession of well known reputation have already been secured to read papers of the greatest present interest pertaining to dentistry.

A complete change in the management of the meetings is in progress. The large Auditorium space will be given entirely to exhibits and clinics, and an especial feature will be made of electrical appliances for use at the operating chair and in the laboratory. The great advancement in electrical mechanics in lessening the labors of the dentist during the past year have been so varied, that it is deemed wise to have all devices exhibited together.

The Clinic Committee, under the chairmanship of Dr. F. S. Gregory, 7 West Park street, Newark, will be pleased to make arrangements for clinics, many new and unique features already having been secured. Electrical exhibits will be under the supervision of Dr. Harvey Iredell, of New Brunswick, with the advice and aid of Hon. George H. Guy, secretary of the New York Electrical Society. Arrangements for the general exhibits can be made with the chairman of all the exhibits, Dr. Wm. E. Truex, Freehold, N. J.

Hotel rates and accommodations will be given in a later issue of the  
ITEMS OF INTEREST.

CHARLES A. MEEKER, Secy.

HERBERT S. SUTPHEN, Asst. Secy.

Newark.

COMMITTEES FOR 1899.

Essay Committee—Dr. F. E. Riley, Chairman, Newark; Dr. R. M. Sanger, East Orange; Dr. C. S. Stockton, Newark.

Clinic Committee—Dr. F. G. Gregory, Chairman, Newark; Dr. Oscar Adelberg, Elizabeth; Dr. C. W. F. Holbrook, Newark; Dr. C. W. Hoblitzell, Jersey City; Dr. N. W. Chitterling, Bloomfield; Dr. J. A. Waas, Hammon-  
ton.

Legislative Committee—Dr. A. R. Eaton, Chairman, Elizabeth; Dr. H. A. Hull, New Brunswick; Dr. C. W. F. Holbrook, Newark; Dr. P. J. Wilson, Princeton; Dr. W. E. Stelle, Plainfield; Dr. W. W. Hawke, Flemington; Dr. J. A. Osmun, Newark; Dr. B. F. Luckey, Paterson; Dr. Charles Harker, Mount Holly; Dr. Edwin Chew, Salem.

Prosthetic Dentistry Committee—Dr. E. M. Beesley, Chairman, Belvidere; Dr. W. H. Pruden, Paterson; Dr. A. R. Lawshe, Trenton; Dr. G. M. Holden, Hackettstown; Dr. Leon Goble, Toms River; Dr. A. Irwin, Camden.

Materia Medica Committee—Dr. J. A. Waas, Chairman, Hammon-  
ton; Dr. W. H. Mitchell, Bayonne.

Dental Literature Committee—Dr. W. G. Chase, Chairman, Philadel-  
phia; Dr. H. S. Taylor, Asbury Park; Dr. F. J. Clawson, Plainfield; Dr. Frank S. Weeks, Plainfield; Dr. W. Woolsey, Elizabeth; Dr. D. W. Val-  
entine, Englewood; Dr. W. C. C. Rosenthal, Elizabeth.

Programme and Printing—Dr. Charles A. Meeker, Newark.

Contracts and Accommodations—Dr. Charles A. Meeker, Chairman,  
Newark; Dr. C. W. F. Holbrook, Newark.

Clinical Conference Committee—Dr. W. P. Richards, Chairman,  
Orange; Dr. W. E. Stelle, Plainfield; Dr. George E. Adams, South  
Orange; Dr. R. S. Watson, Orange; Dr. J. S. Vinson, Newark; Dr. T. F.  
Gifford, Woodbury; Dr. W. W. Hawke, Flemington; Dr. W. M. Sullivan,  
Passaic; Dr. S. C. Slade, Vineland; Dr. C. S. Inglis, Paterson; Dr. H. J.  
Beemer, Newton; Dr. T. N. Bradfield, Newark.

Press Committee—Dr. F. C. Barlow, Chairman, Jersey City; Dr. J. A.  
Osmun, Newark.

Exhibit Committee—Dr. W. E. Truex, Chairman, Freehold; Dr. Har-  
very Iredell, New Brunswick; Dr. W. L. Fish, Newark; Dr. W. H. Pru-  
den, Paterson; Dr. V. G. Voegtlen, Madison.

Entertainment Committee—Dr. Oscar Adelberg, Chairman, Eliza-  
beth; Dr. E. M. Beesley, Belvidere; Dr. W. E. Truex, Freehold; Dr. J. L.  
Crater, Orange.

Committee on Prophylaxis—Dr. B. F. Luckey, Chairman, Paterson;  
Dr. C. S. Stockton, Newark; Dr. G. Carleton Brown, Elizabeth; Dr. C. W.  
Hoblitzell, Jersey City; Dr. Oscar Adelberg, Elizabeth.

### **New Jersey State Dental Society.**

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The exhibit committee of the New Jersey State Dental Society desires to announce that the Auditorium at Asbury Park, N. J., has again been secured for the Society for its meeting in July, and that the large room will be devoted exclusively to exhibits. By this arrangement it is possible to show the exhibits to better advantage than heretofore, and a special effort is being made to make the exhibition a veritable *tout ensemble* of the results of scientific and practical research pertaining to dentistry. A number of applications for space have already been received, and it is earnestly requested that those desiring space communicate with the chairman at an early date.

WILLIAM E. TRUAX, D.D.S.,  
Freehold, N. J.,  
Chairman of Exhibit Committee.

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### **Dental Society, State of New York.**

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The thirty-first annual meeting of the above Society will be held in Albany, May 10 and 11, and the following programme will be presented: President's annual address; report correspondent, R. Ottolengui, M.D.S. Report Committee on Practice, L. C. LeRoy, D.D.S.; Essay, L. D. Shepard, M.D., D.D.S., Boston, Mass.; Essay, R. M. Sanger, D.D.S., East Orange, N. J.; Essay, Wm. Hailes, Jr., M.D., Albany, N. Y.; Essay, A. Retter, D.D.S., Utica.

A cordial invitation is extended to all reputable dentists to attend the meeting.

F. LE GRAND AMES, President.

CHAS. S. BUTLER, Secy., Buffalo, N. Y.

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### **Oklahoma Dental Association.**

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The ninth annual meeting of the Oklahoma Dental Association will be held at Oklahoma City, May 2, at the Hotel Grand.

Reduced rates will be given on the railroads in the Territory. The profession is cordially invited.

E. E. KIRKPATRICK, Secretary,  
Oklahoma City, O. T.

*ITEMS OF INTEREST***Iowa State Dental Society.**

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The next meeting of the Iowa State Dental Society will be held in Des Moines, May, 2, 3, 4, and 5, 1899.

WILLIAM GILMORE CLARK, Secy.,  
Cedar Rapids, Iowa.

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**Southwestern Michigan Dental Society.**

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The meeting of the Southwestern Michigan Dental Society will be held in Cassopolis, April 11 and 12, 1899.

C. E. BURCHFIELD, Secy.,  
St. Joseph, Mich.

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**Vermont State Board of Dental Examiners.**

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A meeting of the Vermont State Board of Dental Examiners will be held in Montpelier, Wednesday, May 17, 1899, at 2:30 p. m., at Pavilion Hotel.

Candidates must come prepared with rubber dam, gold and instruments to demonstrate their skill in operative dentistry.

The theoretic examinations will include anatomy, physiology, histology, chemistry, pathology, materia medica, operative and prosthetic dentistry.

Notice of intention of taking the examination must be filed with the Secretary of the Board before May 10.

GEO. F. CHENEY, Secretary,  
St. Johnsbury, Vt.

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**Ohio State Board of Dental Examiners.**

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The next meeting of the Board of Examiners of the State of Ohio, will be held in Columbus, O., Wednesday, May 31st, 1899. All persons desiring to take the examination must make application to the Secretary before May 20th. Address.

L. P. BETHEL, Secretary,  
Kent, Ohio.

**Porcelain Dental Art Club.**

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A Porcelain Dental Art Club was organized on the evening of February 22 in St. Louis.

The object is to devote time to clinical experiment and the reading and discussion of papers on "Porcelain Work in Dentistry."

Dr. J. H. Kennerly read a paper on "The Evolution of the Tooth Crown and Continuous Gum." Demonstrations of fusing porcelain crowns, using Close's & Downie's bodies and the H. M. Hill furnace were given.

Dr. H. M. Hill was elected president; Dr. T. E. Turner, vice-president; Dr. B. L. Thorpe, secretary and treasurer.

Drs. M. C. Marshall, J. H. Kennerly, H. Prinz, W. F. Lawrenz, I. P. Harper, H. M. Hill, T. E. Turner and B. L. Thorpe constitute the charter members.

Next meeting, March 22.

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**Dental Association of New South Wales.**

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The fifth annual meeting of the Dental Association of New South Wales was held at the Australia Hotel, on Tuesday evening, Jan. 31, and was well attended. Dr. A. Burne, president, occupied the chair.

The president's report for the past year dealt (amongst other matters) with the present position of the Dental Bill, and the untiring work of the Council in its struggle to get at least eight clauses of the bill passed in a House talking nothing but Federation.

The members expressed their confidence in the Council and appreciation of their endeavors, and felt confidence in the final result of the bill being passed.

The balance sheet being read showed a balance in hand of £97 17s. 3d. which, after deducting all the heavy expenses incurred, proved very satisfactory.

The following members were elected for year 1899-1900: President, Dr. A. Burne; vice-presidents, Messrs. H. Paterson and S. Chaim; Hon. treasurer, Dr. C. Davis; committee, Messrs. C. C. Marshall, H. S. Newton, E. A. Gabriel, J. S. Darton; auditors, Messrs. B. Corbett and C. Chandler; Hon. secretary, Mr. H. Taylor.

The president, Dr. Burne, in returning thanks for his re-election, pointed out the present position of the Dental Bill and the prospects of its finally becoming a law in the near future; he also expressed thanks to the Council and secretary for their support during a very trying term of office.

A vote of thanks to the chairman closed the meeting.

H. TAYLOR, Hon. Secy.,  
Sydney, N. S. W.

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### **Southern Wisconsin Dental Association.**

The Southern Wisconsin Dental Association will hold its fifth annual meeting at Janesville, May 3 and 4, 1899. A cordial invitation is extended to the profession.

Officers elected at the last regular meeting are: President, F. S. Knapp; vice-president, Isaac Burton; treasurer, W. G. Hales; secretary, J. H. Reed.

J. H. REED, Secretary,  
Lancaster, Wis.

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### **Tri-Union Meeting.**

The third tri-union meeting of the District of Columbia Dental Society, the Maryland State Dental Society and the Virginia State Dental Society, will convene in Washington, D. C., June 7, 8, and 9, in the Dental Department of Columbian University, 1325 H street, N. W.

Eminent practitioners from many States will be present to clinic and read papers.

The profession cordially invited.

JNO. H. LONDON,  
Chairman Joint Executive Committee,  
1115 G St., N. W., Washington, D. C.

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### **Oklahoma Board of Dental Examiners.**

The Oklahoma Board of Dental Examiners will meet in Oklahoma City, May 2, 1899. Those holding diplomas send for application blanks.

E. E. KIRKPATRICK, Secretary,  
Oklahoma City, O. T.